

AUTOMOTIVE INDUSTRIES

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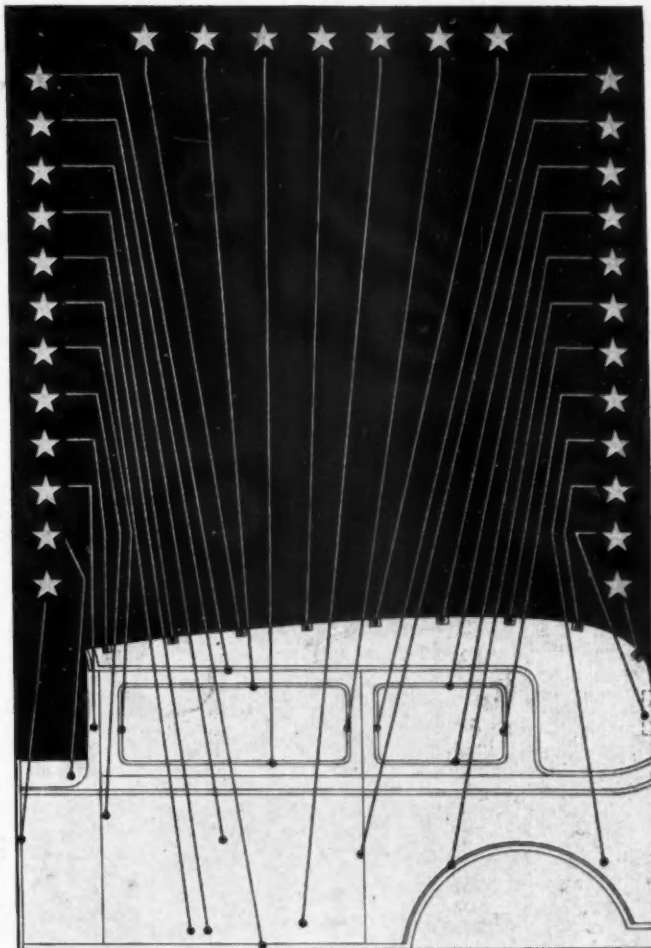
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The Calendar is Our Best Friend

THE automobile industry is going to build and sell at a profit more vehicles in 1932 than it did in 1931.

How many more is problematical. But after careful study of all the elements involved, we are risking on the above statement what little reputation as a prophet is still left us.

It is our honest opinion that passenger car output next year may run in the neighborhood of 2,450,000, as compared with about 2,011,000 in 1931; and that truck output may reach the 500,000 mark again, as compared with about 425,000 in the year just passed.

These figures we put down in fear and trembling, because never before were the possible variables so great. It is perfectly possible that the majority of bankers and economists with whom we have talked on this subject are right in their belief that production and profit totals for the automotive industry in 1932 will be just about the same as in 1931; that no progress will be recorded until 1933. But we don't think so. We believe that discernible movement upward from the bottom of the depression will be noticeable in automotive figures before the end of 1932.

Why?

Here are a few of the reasons:

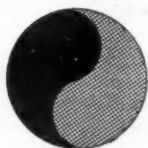
More automobiles went on the junk heap in 1931 than were sold new; this for the first time in the history of our industry. No change has occurred in our economic or social life to indicate a lesser need or a lesser desire on the part of our people for individual transportation. No other means of performing the same function has begun to displace the automobile or the truck. Thus we enter 1932 faced with a back-log of potential buyers who want automobiles and who need automobiles. Some of them have money with which to buy. They had it in 1931 but didn't spend it. The automobile is so much an integral part of their lives that they can't do without it much longer. The sales resistance of this group gets less with each month of going without a car.

Next in line is that group of car owners which has not gone without a car during the depression but which has run its vehicles more miles than under normal conditions.

The year 1931 has brought to the brink of the junk heap thousands of cars in the hands of this group of owners, because the cars have been run more miles than ever before. In the face of increasing gasoline taxes, wide-spread unemployment and a decrease in

No matter what happens
to all business in 1932
dying vehicles must be
replaced

by Norman



G. Shidle

total number of vehicles in operation, gasoline consumption was higher in 1931 than in any previous year.

The use of passenger cars and trucks continues to increase in spite of hell and high water!

Now into this background of increased use, increased desire and increased need for automotive transportation, let us put the 1932 products of the car and truck makers.

No rose-tinted glasses are needed by anyone to see that 1932 motor vehicles are better vehicles than those of any past vintage. They are better in design, better in performance, and better in emotional and eye appeal.

And they are lower in price.

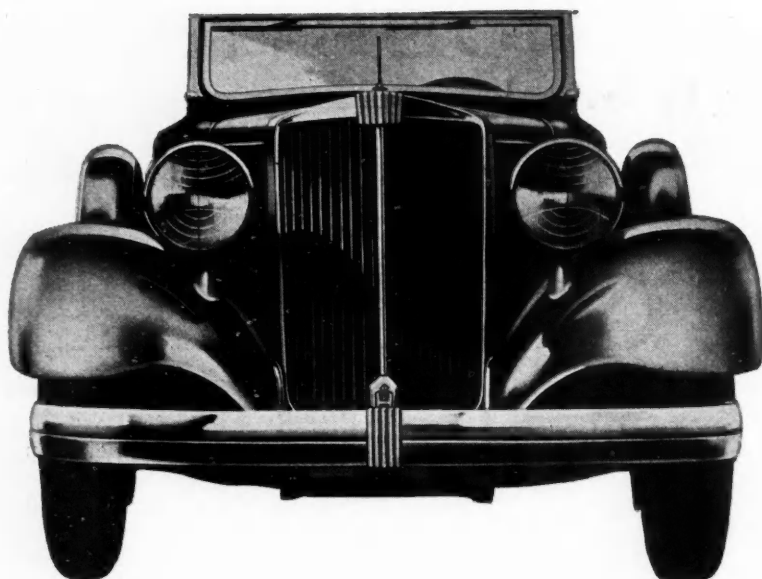
As a base, then, to this pyramid of forces on which our return to prosperity will be built, we have greater desire and greater need for cars and trucks, and better cars and trucks at lower prices than ever before.

Reared on that foundation, the industry enters the new year equipped for sales and merchandising activity more completely than ever before. The foam has been blown off the schooner of sales activity. Ideas, rather than ten-course banquets will dominate the sales meetings of 1932. Less food and more thinking will be the order of the year. In factory and in dealer establishments men who have been posing as executives for years will come out from behind their mahogany desks to go either out on the sales firing line or before the efficiency firing squad. Tremendous action, based on the soundest thinking that has been done in years, will dominate automotive merchandising this year.

Selling power of this kind placed behind the best and the cheapest products the industry ever has had and directed to a transportation-hungry people can scarcely fail—barring “acts of God”—to push automotive production and profits in 1932 ahead of their 1931 records.

All of the foregoing is predicated on the idea that general business conditions will remain as they are and show little definite signs of really getting better. Purely on the basis of its position in relation to its fundamental economic significance, the automotive industry should do better this year than last even if general business stays at a low ebb.

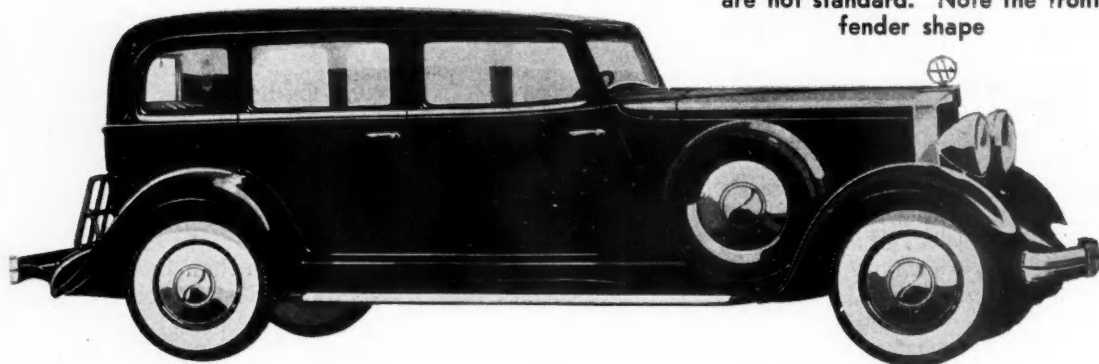
Should general business conditions improve, on the other hand, our industry will be among the first to profit materially from the upward movement. We are loath to speculate much on this phase of 1932 possibilities. Automotive men don't need to. Opportunity lies open for them in 1932 whatever happens elsewhere.



Trusses Stiffen

Front view of one of the new Hupp eights showing the distinctive new radiator front and rolled edge wide fenders. The fluting shown on the bumper and top radiator tank is carried as a motif throughout the car

This Hupmobile eight sedan, on a 122-in. wheelbase chassis, lists at \$1,295. The disk covers for wire wheels and trunk rack shown here are not standard. Note the front fender shape



TWO new lines of eight-cylinder Hupmobiles, on wheelbases of 122 and 126 in., may justly be classed among the most striking of 1932 cars thus far announced. Of three new lines offered by the Hupp Motor Car Corp., the six (or Model 216) represents a development of the 1931 six-cylinder Hupmobile with important new features; the eights, on the contrary, are virtually entirely new. Their engine power is increased, and their transmissions, universals, frames, axles, steering gears and bodies are of new design. Perhaps the most interesting single feature on these

cars is what is referred to as the chassis torsional stabilizer, which consists essentially of means for tying together the body and chassis. Much of the novelty of appearance of the new eights is traceable to this feature.

A motor car consists virtually of two rails on which are mounted the radiator and fenders at the front, the cowl at the center, and the body rear structure at the rear. All three groups are tied together at the bottom by the frame. Cowl and body can be tied together at the top through the roof structure. What Hupmobile

Hupp Concentrates Improvements on Body and Chassis

New features on all cars:

- Longer wheelbase
- Synchro-silent transmissions
- Free wheeling in all forward speeds
- Chassis torsional stabilizer
- Increased horsepower
- V-type radiator
- Five demountable wire or wood wheels std.
- Built-in radiator grids
- Chrome-molybdenum axle shafts
- Anti-squeak springs
- Larger gasoline tanks
- Longer springs
- Increased body insulation
- Push-pull front seat adjustment
- Safety steel running boards
- Larger brakes
- Intake silencer

Additional features on eights:

- X-type frame
- Striking new bodies
- Hypoid rear axle
- Needle-bearing universal joints
- Tubular front axle
- Rubber-mounted transmission
- Novel type front fenders
- Separate running boards
- New body structure
- Hour glass worm and roller steering
- Oil temperature regulator
- Oil level gage
- Box-type hood louvers

Additional features on six:

- Downdraft carburetion

Hupp Frame, Tying It to Body Members

Torsional stability sought on 1932 lines with horizontal X-member and three-dimensional triangular brace from front end to dash.

Fenders mounted individually

by Athel F. Denham

has done is to tie together all three groups of units in a triangular truss.

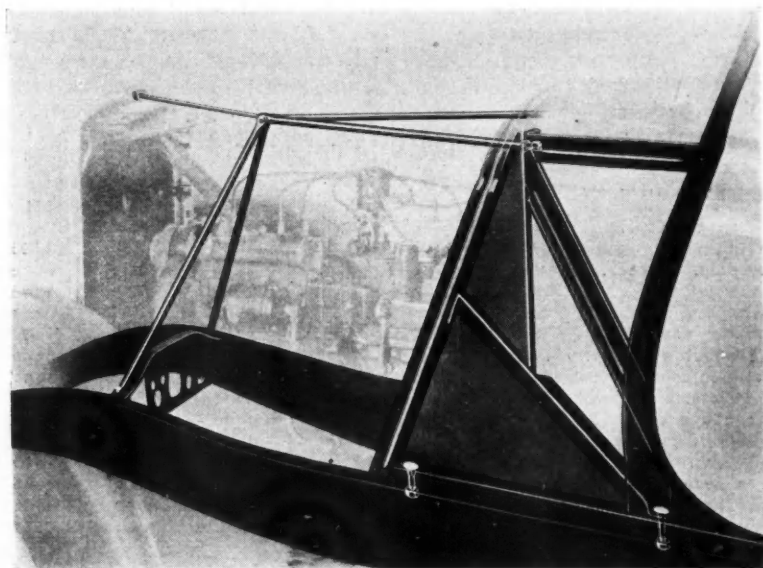
First an X-type cross member ties the front and rear body sections together more firmly. A new roof structure has essentially the same effect. The truss structure for tying in of the front end begins in the cowl. There are braces in the form of inverted vees on both sides, the rear leg of which is connected to the

frame at the rearmost point of the cowl, while the front leg, forward of the dash, extends down to the frame. Since the cowl side panels have been extended to this brace, this accounts for the sloping rear hood edge. The upper ends of the inverted vees are anchored to the rear end of the two steel rods which extend forward horizontally from the sides of the cowl to the radiator, near which they are bolted together to form another triangle.

Two more steel rods, sloping forward slightly from the apex to this triangle, are anchored to the front cross member near the frame side rail, thus forming a triangle with the front cross member. Each of these nearly vertical rods, when taken together with the corresponding horizontal rod, and the frame side rail, forms practically another triangle.

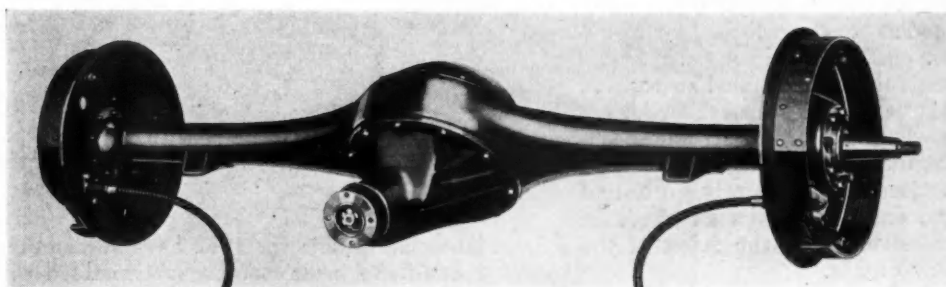
The object of this construction is to eliminate shimmy and front-end weave, and to reduce body distortion materially. The body itself also has been strengthened, particularly by the new roof design, in which the heaviest braces are located over the front compartment (point of maximum stress); with all corners reinforced by triangular braces. At the rear of the body there is a new steel wheel-housing riser, with a steel reinforcing plate for added stiffness at this point.

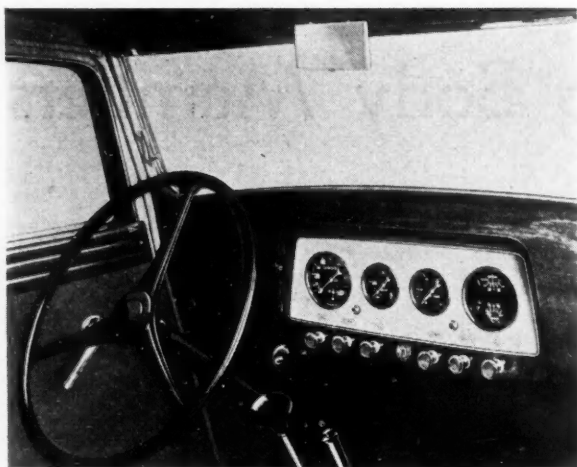
Front and rear fenders are no longer bolted to the running board but are in-



Phantom view of the Hupmobile torsional chassis stabilizer

Axles on the new Hupmobile eights are tilted at an angle of about 45 deg. for maximum ground and seat-pad clearances





Hupmobile eight front compartment showing the recessed instrument panel, and one of the two windshield locking and opening handles. Note also false header concealing the wiper mechanism, etc.

dividually mounted and insulated from the running board by rubber bumper buttons. The front fenders have a double bracing system. Outer edges are curled under for added strength and to form a "gutter," and at the front the fenders are carried well down to conceal the chassis. All tires or spare wheels are side-mounted, on a frame bracket rather than a dash bracket. The new running-board construction provides drainage space at the fender connections, preventing the accumulation of water along the running-board splash guard, thus reducing the tendency to corrosion.

Body fenders have a decidedly deeper crown than formerly, for added strength and improved appearance, and they also have the rolled-under edges.

Side mounting of the spare tire being standard, trunk racks are furnished on sedans. Rear ends have been cleaned up further for neat appearance. Running boards narrow up toward the front, and collision side-bumpers are offered at slightly extra cost. Front radiator splash pans are carried out almost horizontally, along the lower edges of the fender skirts, the front fenders themselves forming a narrow hood sill.

Hoods have box-type door ventilators on the series 226, with conventional louvers on other models and are locked to radiator and dash through a single central combination locking and lift handle. There are two large cowl ventilators of irregular triangular shape. Hoods, it will be noticed, are relatively high, and the ensemble gives an effect of massiveness to the front of the new eights.

Two wipers are standard equipment on the eight. Instrument panels are recessed somewhat so as to place the panel at right angles to the normal line of vision. They now carry a combination electric gas and oil level gage. Windshields are opened with two locking handles, one on each side. When these are pulled down, the windshield swings out, guided in folding raceways. They can be locked in any position by turning the locking handles up.

New interior fittings include flaps for the door pockets and ash trays built in side arm rest of the rear compartment. Anti-draft rubber pads are mounted on the engine side of the dash around pedal slots. Body insulation now includes also a felt pad under the chicken wire of the roof, and fabricoid-backed insulating materials on body and door panels.

Rear seat pans have an oval cut-out for rear axle clearance, the opening being sealed with a rubber diaphragm. All electric wires and control connections, from the front compartment to the powerplant, are assembled in three groups and passed through large rubber grommets, for neatness, insulation and ease of service.

There are no roadsters in the new Hupmobile line, which instead includes convertible cabriolet-roadsters with unusually neat top folding construction. The top disappears entirely behind the front seat, and a sheet metal cover is furnished to further conceal it. The door glass in this model is raised and lowered by a crank. Windshields are of the forward-folding type.

Seat-adjusting mechanisms are now of the push-pull sliding type, with a locking handle in the center of the seat. Broadcloth and mohair upholstery are optional.

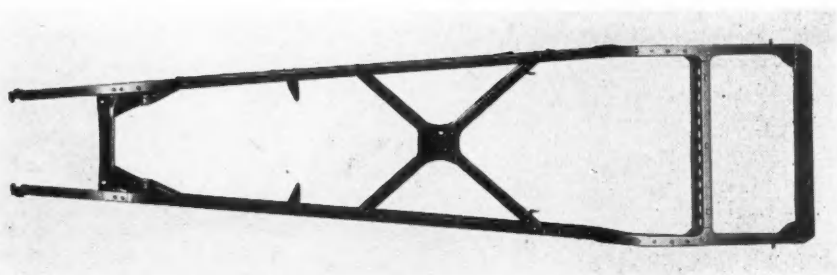
The bore of the engines in both eights has been increased 1/16 in., which has resulted in a 3 per cent increase in power. The engines now have the rear mounting that was used on the Century eight models

Hupmobile Comparative Price List

Number of cylinders.....	6	6	8	8	8	8
Year	1932	1931	1932	1931	1932	1931
Model designation	No. 216	S	No. 222	L	No. 226	C
Four-door, five-passenger sedan	\$995	\$995	\$1,295	\$1,295	\$1,595	\$1,595
Two-passenger com. coupe....	995	995	none	1,295	none	none
Convertible cabriolet	1,050	1,050	none	1,350	none	1,595
Cabriolet roadster	none	none	1,395	none	1,695	none
Two-four-passenger coupe	995	995	1,295	1,295	1,595	1,595
Five-passenger phaeton	1,050	1,050	none	1,350	none	none
Two-four-passenger roadster ..	1,075	1,075	none	1,375	none	none
Five-passenger Victoria coupe..	none	none	1,360	none	1,695	1,615
Four-passenger coupe	none	none	none	none	none	1,615
Seven-passenger phaeton.....	none	none	none	none	none	1,685
Five-passenger town sedan....	none	none	none	none	none	1,705
Seven-passenger sedan	none	none	none	none	none	none
Seven-passenger limousine	none	none	none	none	none	none

In the above tables, cars new to Hupmobile are shown. Also the comparative 1931 models.

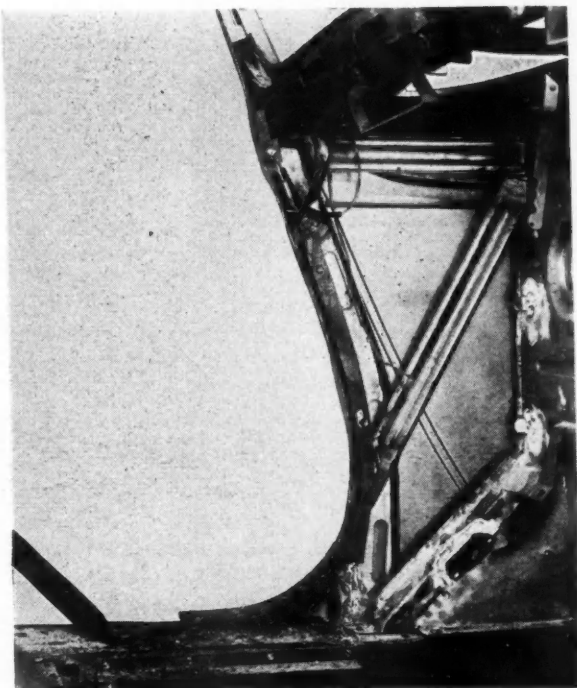
The series designation indicates wheelbase. Thus No. 216 refers to 116-in. wheelbase cars, etc.



Hupmobile eights for 1932 have X-members in the frames. An additional cross member is assembled with the powerplant

in 1931. A banjo-type cross member surrounding the clutch housing serves as the point of attachment, the rear engine plate being bolted to it at four points through rubber insulating pads. In this manner the effect of a two-point mounting is obtained without sacrificing a frame brace at this point.

There are three other points of support for the powerplant, two on rubber at the front cross-member gusset plates, and one at the rear of the transmission, on



Detail of inside of cowl structure showing one of the triangulating struts. Note how the door opening is shaped for maximum ease of entrance without interfering with effectiveness of this strut

a cross brace extending across the front legs of the X member. Naturally, not much of the load is carried at this latter point.

Harrison oil-temperature regulators are standard on the eights. The oil passes through them on its way from the filter to the oil-pump intake in the crankcase. Failure or clogging of the intake does not prevent the oil from reaching the bearings.

Radiator fillers are now concealed under the hood. There are double carburetors on the eight as formerly. Piston pins are now of the full-floating type, with a snap ring retainer. Distributor heads have been redesigned for sealing against moisture. Ignition wiring is not carried in conduits but separated to prevent shorting in case of wet wires.

Free-wheeling units are now located at the rear of the transmission and are effective in all forward speeds. Lock-out of the free-wheeling unit is by a push-pull button on the dash near the steering column. It is provided with a button at its center which has to be depressed to shift in or out of free wheeling. This lock is provided as precaution of the control "creeping." A clutch interlock is also included so that to lock out the free wheeling unit, the clutch must be de-

pressed. The transmission is now provided with synchro-shift cone clutches.

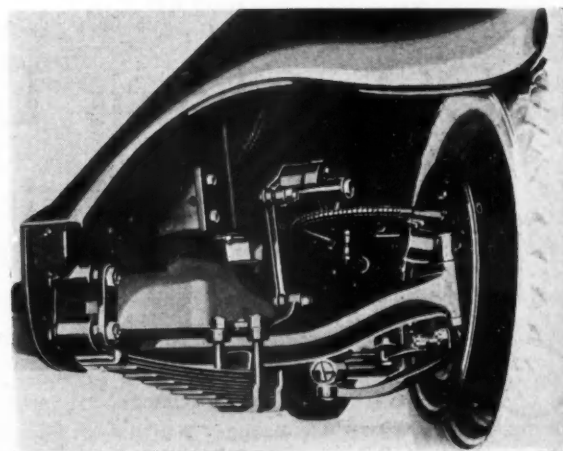
Clutches on the eights have been increased in size. The 226 has a spring-cushioned and the 222 a rubber cushioned center, the clutch on the former being of Borg & Beck and that of the latter of Long make. Universal joints are of the Universal Products new type, which was described in *Automotive Industries* for Nov. 21. They have needle-type roller bearings and require no attention for lubrication. Hypoid axles, which are manufactured for Hupmobile by the Brown-Lipe-Chapin Co., are largely responsible for the low overall height of the new cars, together with the smaller 17-in. wheels used and underslung front springs. The axles are tilted at an angle of approximately 45 deg. for additional road and seat pan clearances.

Hupmobile-Midland Steeldraulic brakes have been increased in size. Front axles are of the tubular type. Tire sections are larger and painted wood or wire wheels are optional. Either lacquered or chrome plated disk "covers" for both types of wheels available at slight extra cost.

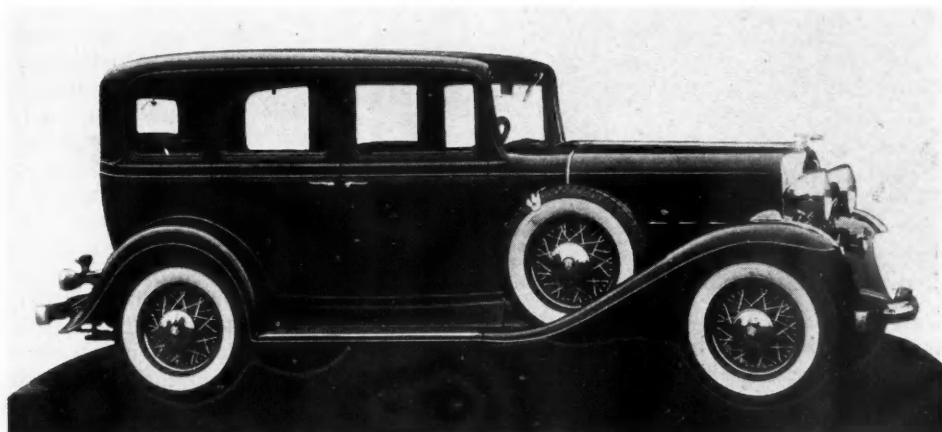
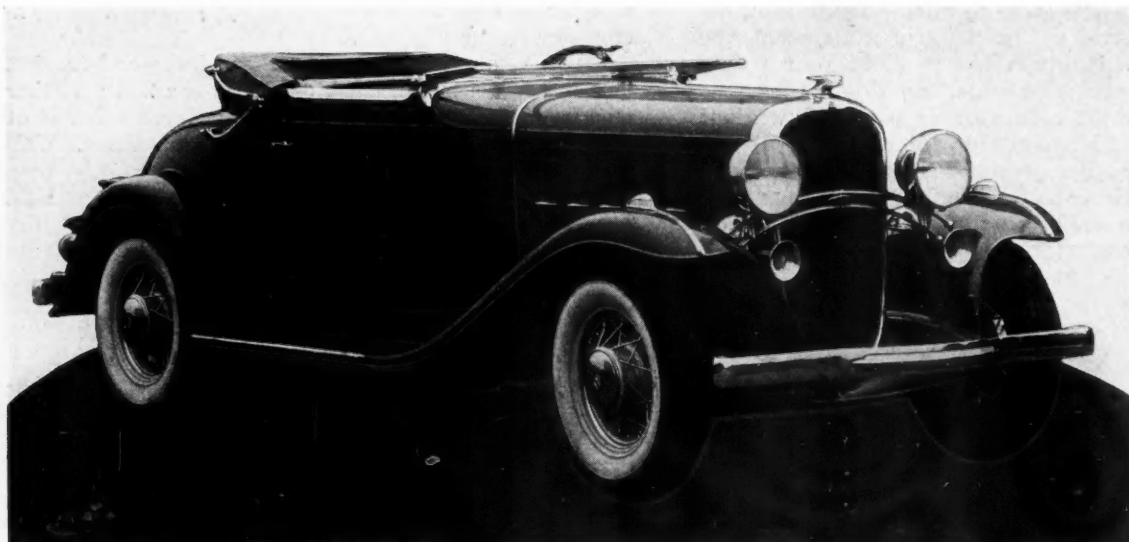
Frames now have an X-type center brace, with the arms at approximately 90 deg. and of equal length fore and aft. Rear kick-ups in the side rails are provided with "cuffs" over their entire length for additional stiffness and to reduce the depth of the side rail over the axle for low overall height. Front cross members have been increased in depth and the gusset plates extended into the spring horns and side rails fore and aft. Front spring horn lower flanges are rolled down for additional stiffness. The kick-shackle is now of the rubber type. The rear spring pivot for the front springs (shackled at the front end) is carried in a bracket which in turn is mounted in two rubber "silent-bloc" bushings inside the frame channel to absorb road shocks and prevent wheel fight. Springs themselves are longer and carried in Silentbloc shackles throughout. Lubrication attention requirements for steering knuckles have been reduced by the installation of Gits oil reservoirs at these points.

Further new features in the eights include new Gemmer hour-glass worm and double roller worm and sector steering gears, an increase in rear axle treads to around 60 in., self-adjusting packing in the water pump

(Turn to page 18, please)



Hupmobile eight-cylinder front axles are now of the tubular type with underslung front springs. The kick shackle is now of rubber and is located at the rear of the front spring



Olds Chassis Designed for Six or Eight; Carry New Automatic Choke Control and

ONCE more Olds Motor Works enters a new year with a six fundamentally unchanged but incorporating many improvements and refinements, among which are a longer wheelbase, free wheeling, ride regulator, increased horsepower, oil temperature regulators, improved synchromesh transmissions, modernized body lines with sloping windshields and pillars and no external visor, a completely automatic self-adjusting choke and a carbon-removing injector.

An eight-cylinder powerplant on the same chassis is

now optional, and is modeled on the successful Oldsmobile six design. Except for the engine and one or two minor details, such as inclusion of a windshield-wiper vacuum-booster pump in the standard equipment, both lines of cars are identical. The booster pump is combined with the fuel pump. There is a price difference of \$100 between the two lines.

Oldsmobile has virtually only one line of cars for 1932, but it gives an option on powerplants, simplifying both its manufacturing and its merchandising problems.



The 1932 six-cylinder two-door sedan. Note the sweeping lines of the fenders, the fender lights, door-type hood ventilators and windshield lines

On the facing page at the top is shown the 1932 Oldsmobile six convertible roadster. Chrome-plated twin horns are standard and are mounted below the chrome-plated bullet-shaped headlights

Below the roadster is shown the 1932 straight-eight. Inside the car has adjustable seats of the sliding type. Cigar lighters and ash trays in the front compartment are standard equipment

Optional Engines Vacuum Booster

The bore and stroke of the new eight are 3 and 4½ in. respectively, which makes the piston displacement 240 cu. in., and the engine develops 82 hp. at 3350 r.p.m. A dual downdraft carburetor is fitted to four-port manifolds, the inner manifold feeding the four center cylinders and the outer the four end cylinders. In general design and aside from dimensions the six and eight-cylinder engines are identical.

The horsepower of the six-cylinder engine has been materially increased, first by an increase in bore of

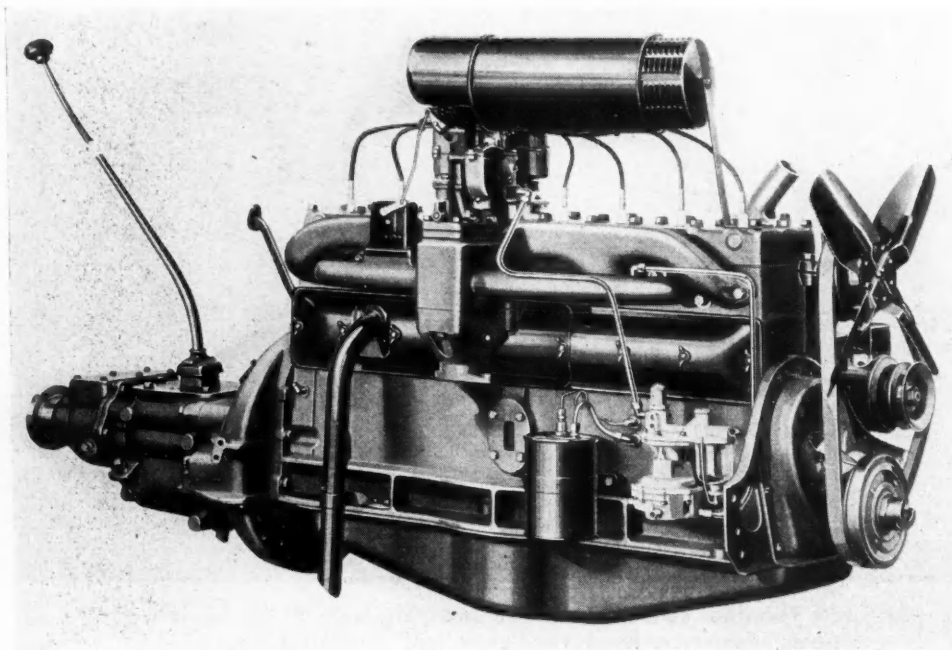
⅛ in. to 3 5/16 in., and secondly by an increase in compression ratio from 5.06 to 5.30 to 1. The new engine develops 71 hp. at 3200 r.p.m., for a displacement of 213.3 cu. in.

Carburetors and manifolds on the six are new. Two important additions are thermostatic control of the inlet-manifold temperature and an automatic choke. The temperature-control valve is counterweighted. The automatic choke consists of a bimetallic element mounted in a pressed-steel housing on the intake manifold. When the engine cools down the thermostat pulls the choke valve closed. A small lock is provided to hold it in this position. When the engine starts, the manifold vacuum trips the lock by virtue of an off-center mounting of the choke butterfly, allowing the choke valve control to "float." As the engine warms up the choke valve is gradually opened automatically. The automatic choke valve is arranged in such a manner that the last one-quarter of throttle opening also trips the lock, permitting "unloading" of the manifold by opening the throttle, in case the engine fails to start or is by chance overchoked.

The carburetor is a Stromberg EC-2 with 1¼-in. throat, and, the same as last year, is of the downdraft type. It incorporates a deeper bowl among other changes. At the air intake is mounted a combination air cleaner and AC intake silencer.

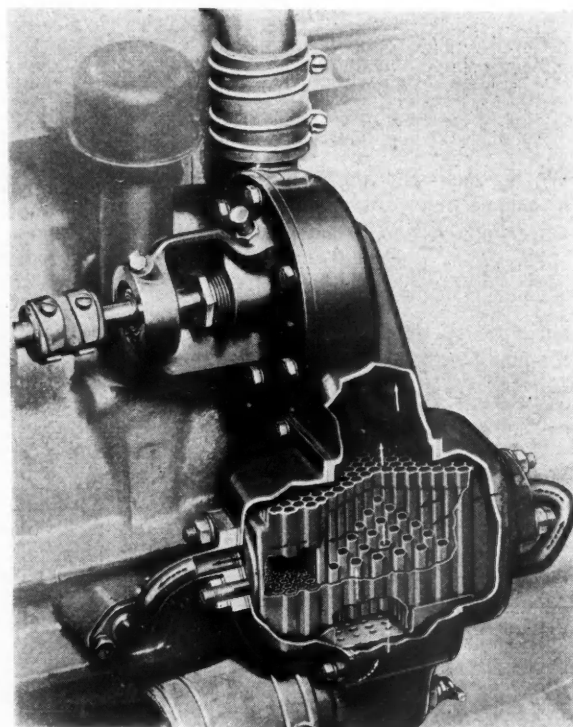
As a protection against vapor lock, the fuel pump is now fitted with an air dome, and the fuel line carried around the front of the engine away from the exhaust. The fuel pump is now located at the front of the block, back of the fan, while the crankcase ventilator pipe, which was formerly located there, is now spot-welded to the valve cover.

The decarbonizer, which is standard equipment on the new Oldsmobile, has been previously described in these columns. It consists of a glass bowl connected by tube to the intake manifold. A plunger extending through the dash opens a valve in this line to permit



Unit plant assembly in the eight-cylinder Oldsmobile

Below is the oil temperature regulator standard on both engines



the chemical to be sucked into the engine. The chemical dissolves the gummy binder, permitting the carbon to be blown out when the engine is started again after two or three hours. There is a T-connection in the vacuum line near the bowl, the other branch leading to the windshield wiper. In addition to removing the carbon, this injector also serves as a protection against sticky valves and guides, and it made possible the higher compression ratio found on the 1932 Oldsmobile.

Contributing partially to the increased power are larger valves, the head diameter being increased $3/32$ in. to $1\frac{5}{8}$ in. for the inlet and $1\frac{1}{2}$ in. for the exhaust. Valve-spring pressure has been increased, being now 43 lb. with the valve closed (spring $2\frac{1}{4}$ in. long), and 96 lb. with the valve open (spring $1\frac{29}{32}$ in. long).

The crankshaft is now offset $1/16$ in. Timing marks are now carried on the torsional damper at the front of the crankshaft, with a pointer mounted on the front-end chain cover. Main bearings are now of the bronze backed, babbitt-lined type and have the babbitt spun in.

The cooling system has been improved in several ways, and its capacity increased to $16\frac{1}{4}$ qt. Radiator header tanks have been improved so as to reduce loss of water through the overflow. A Schwitzer-Cummins four-bladed fan with unequal angles between blades is now standard equipment. The fan shaft is of steel, tin-plated, and runs in a cast-iron bearing. The hub contains an oil reservoir. A micrometer adjustment is provided for the fan belt, the bracket being arranged to slide vertically on the front of the block, and to be locked in position by nuts after adjustment has been made by turning an adjusting screw in the mounting block. The water pump is driven off the generator shaft and is provided with an outboard ball bearing to remove all lateral load from the packing gland to prevent leakage. As already mentioned, a Harrison oil cooler is now standard equipment.

Other engine changes include a slightly-altered spark-plug timing, new 18-mm. spark plugs, and a fly-wheel having a narrower starter ring with 145 teeth of 10 diametral pitch (as against 114 teeth formerly) for a gear ratio of 16.11 to 1.

Owing to the adoption of free wheeling, the generator has been speeded up by the provision of a smaller pulley, and the battery capacity has been increased from 80 to 86 amp.-hr. The Oldberg muffler is mounted in rubber at the rear. The exhaust pipe is rigidly supported from an engine bracket at the front, while the tail pipe is similarly supported from a frame cross-member.

The engine mounting system is entirely new for Oldsmobile. At the front the engine is supported on surfaces making angles of 25° with the horizontal, on brackets on the frame side channels, while at the rear there are two biscuit-type supports on a frame cross-member.

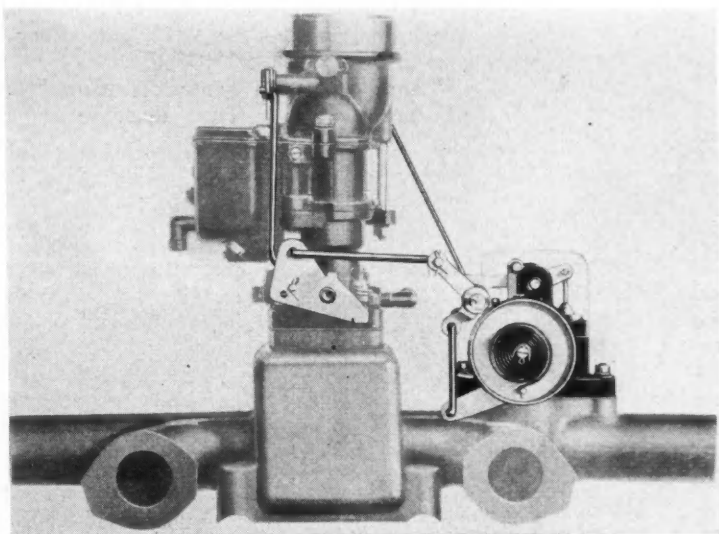
A torque rod or stabilizer extends from the transmission housing to the gusset plate between the side rail and the cross-member supporting the transmission, where it is carried in a rubber-insulated mounting. The angle of the front mounting surfaces is such that lines normal to these surfaces at their center points intersect in a point on the normal axis of oscillation of the engine, the latter extending from the rear support upward through the center of gravity.

In the biscuit-type rear engine-supports the rubber is held between inner and outer casings made of pressed steel, which are mechanically closed during assembly to provide the desired amount of compression for the rubber. Front supports are adjustable for compression, as is the mounting of the torque stabilizer. The latter is said to be particularly effective in eliminating periodic vibration of low order. The type of mounting used permits of setting the engine at an angle for an approximately straight-line drive to the rear axle under load.

In the transmission are to be found several improvements. A more compact construction, improved heat treating of gears to reduce distortion, with teeth cut at a 45-deg. angle and lapped in pairs, contribute to increased quietness of second-speed operation.

"Frictional drag" springs at the bottoms of the splines, instead of the small detent springs formerly located on the synchronizer drums, improve synchronization. Cones and bronze drums are held to closer limits. Shifter forks are now fastened to their rods, which slide in bearings pressed into bosses cast into the transmission case, for more accurate alignment and ease of shifting. The interlock mechanism is new and includes provision to insure absence of scraping or rubbing of forks in their grooves. Gearshift lever trunnion construction incorporates a spring action which automatically throws the knob over toward the right-hand side when coming out of low gear, thus making it practically impossible to accidentally shift into reverse gear.

Main shafts and sleeve splines are now cut with in-



A completely automatic choke requiring no hand operation is found on both six and eight models

Below are list prices of the 1932 Oldsmobiles:

Body types	Six-cylinder	Eight-cylinder
Two-door sedan	\$875	\$975
Business coupe	875	975
Four-door sedan	955	1,055
Sport coupe	925	1,025
Convertible roadster	955	1,055
Patrician sedan	990	1,090

All prices f.o.b. Lansing, Mich. Either five wire or five wood wheels and mohair or whipcord upholstery optional.

Six wheels with fender wells, etc., \$45 extra.

White sidewall tires (five) \$7.50 extra; (six) \$10 extra.

volute instead of straight sides to prevent "slipping out" of second gear in coasting down a hill under load, a characteristic of some constant-mesh gear transmissions using helical gears. The sleeve is also longer and while being hardened is gripped at each end in a die to insure full-length bearing. The helix angle on the constant-mesh gears has been reversed without any tendency to slip out on second-speed drive.

Second-gear ratio is slightly higher than formerly, 1.66 to 1 as against 1.629. Low speed is lower, on the other hand, with a ratio of 2.90 to 1, for higher speed in this gear. Reverse ratio is 3.67 to 1.

Back of the transmission and integrally mounted with it is the roller-type free-wheeling unit of the Detroit Gear & Machine Co. The unit is controlled selectively by a push-pull button on the dash. An interlock is provided which makes it necessary to depress the clutch after acceleration to lock out the free-wheeling unit. Oldsmobile discourages the use of free wheeling for high-speed driving, the device being intended mainly to facilitate gear shifting and reduce clutch operation in city driving.

Axles have been increased in strength by increasing the axle-shaft diameter $\frac{1}{4}$ in. Brake drums now are $1\frac{3}{4}$ in. wide. Rubber bushings are provided in the tie-rod of the steering gear to obviate the necessity for lubrication. The steering-gear ratio has also been increased to 17 to 1.

The frame is slightly heavier than formerly, which is due partly to the increase in wheelbase and partly to detail changes in design. Brake and clutch pedals as well as the emergency brake lever are now mounted on the frame to prevent the transmission of engine vibration to the body. Rubber enclosures are provided around control.

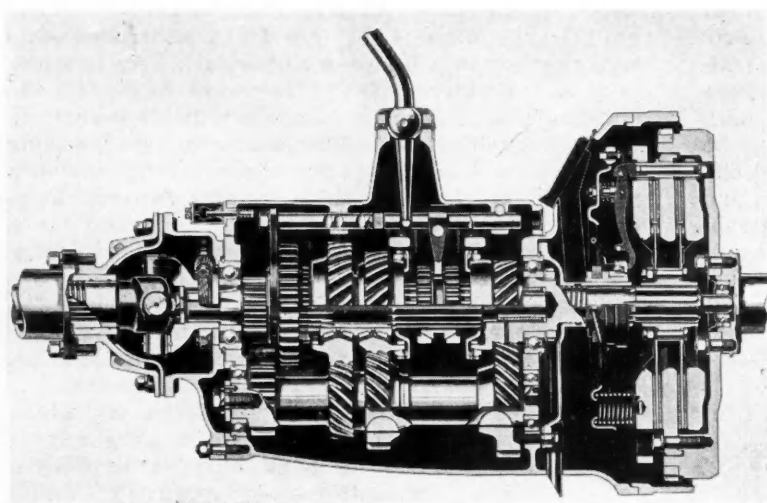
There are no dimmer bulbs in the Tilt-ray twin-filament headlamps, but "streamlined" parking lights have been added on the fenders, with the glass extending around the sides so that when lit they can be seen by drivers approaching at right angles. A "check valve" connects these lights to the contact points for the lower or depressed beam on the headlight switch. This relay is in the form of a special metal element which will permit current to pass through in one direction and not in the other. When the headlight switch is in the depressed beam position sufficient current also is sent to the fender lights to illuminate them dimly. Owing to this "check valve" the fender lights can be illuminated for parking without lighting the headlights.

Two tail lights are carried, and both of them have reflecting elements in the lens as a protection in case the bulb should burn out. When the brakes are applied both tail

(Turn to page 14, please)

Vacuum-operated clutches giving free-wheeling effect, ride regulators, resonator silencers on exhaust pipe, and constant-mesh gears for all forward speeds, contribute to distinguishing

1932 Cadillac and LaSalle, Offering Innovations Centered



Section through transmission and clutch. Note large masses of clutch driving members

CADILLAC MOTOR CAR CO. continues its LaSalle eight and the Cadillac V-8, V-12 and V-16. The cars have been completely modernized and incorporate features that are innovations in the domestic market.

Among the most important additions are vacuum-operated clutches on all cars, whereby use of the clutch pedal is rendered practically unnecessary; a new "super-safe" system of headlamp lighting on Cadillacs; ride regulators which operate on the pressure-control rather than on the orifice size-control principle; resonator silencers for the V-8 exhaust pipes, silent constant-mesh gears for all forward speeds, free wheeling as a consequence of the vacuum-operated clutch, automatic cleaning of oil filters on the V-12

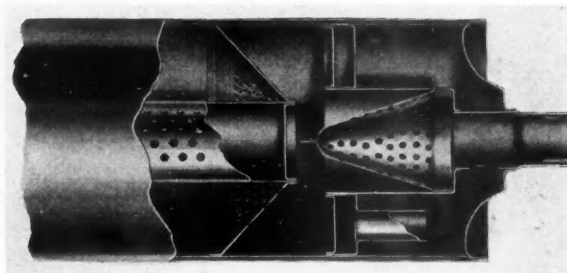
and V-16 Cadillacs, 30-gal. fuel tanks on all models, and separate vacuum pumps for the windshield wipers, driven off the camshafts. Each car is now available in two wheelbase lengths, as follows:

LaSalle 8	.....	130 and 136 in.
Cadillac 8 and 12	.....	134 and 140 in.
Cadillac V-16	.....	143 and 149 in.

Eight-Cylinder Engines

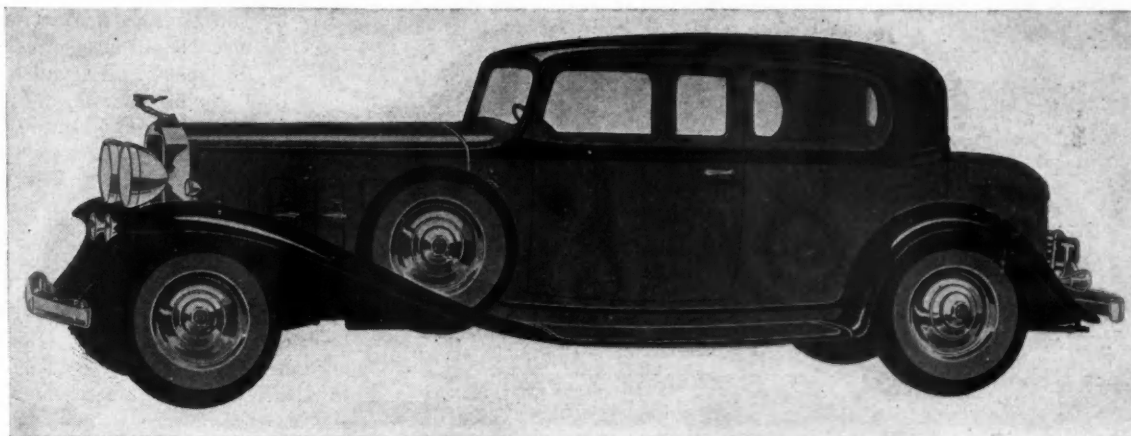
Cadillac and LaSalle powerplants have been cleaned up materially since last year and present a neater appearance. Engine horsepower has been increased more than 15 per cent as a result of new manifolding, new carburetors, an opened-up intake system and better distribution. At the carburetor intake there is a combination AC intake silencer and air cleaner.

There has been some rearrangement of accessories. The distributor is

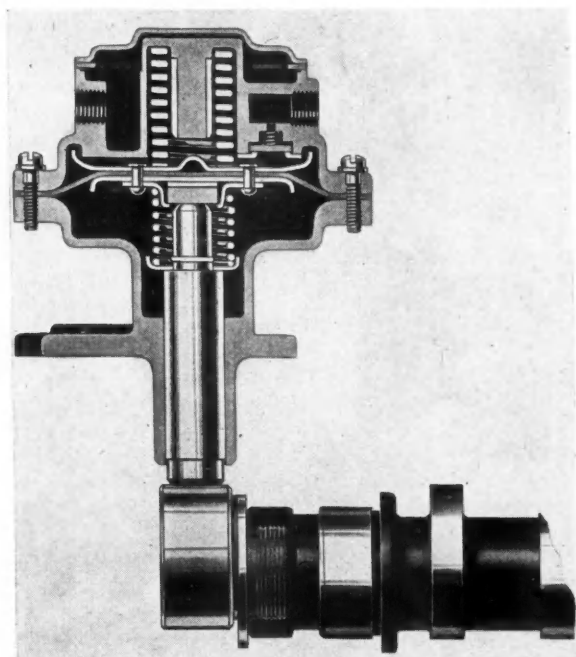


Details of muffler with resonator silencer

LaSalle five-passenger coupe



on Silent Power Utilization



Vacuum booster in section driven by eccentric on end of camshaft

mounted lower than formerly. Fuel pumps have replaced the former vacuum system, and are located at the front outside of the crankcase, being driven off a cam on the distributor shaft. Protection against vapor lock was one of the prime objects of this change. The fuel line from the gas tank is located outside the frame channel. The exhaust take-down being located at the rear of the engine, it is not necessary to insulate the fuel line under the hood.

A new contour for increased quietness has been worked out for the cams. A slightly earlier spark goes with a change in spark-plug location. Fans are still of the six-blade aluminum type but have wider blades for increased cooling, and for the same reason

operate in a ring shroud. This is particularly effective in increasing cooling at idling or low speeds, as when free wheeling. The radiator itself has a deeper (4-in.) core, and air flow through the core has been facilitated by changes in cell design. The capacity of the cooling system has been increased two quarts.

Rolled bronze bushings are now used for the piston pins, in place of the former cast type. These bushings are of the thin wall type for a better seat. Pistons are tin-plated and have a wider upper oil ring. Two optional compression ratios of 5.38 and 5.7 to 1 are available thickness.

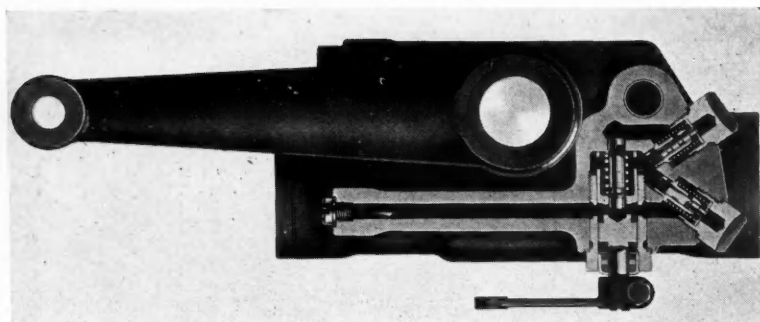
Owing to the increased demands made on the electrical system by the new lighting system and as a result of free wheeling, the battery capacity has been increased to 130 amp. hr. and the generator speed increased. Moreover, a system of forced cooling and ventilation has been applied to the generator. An air horn on top of it, screened against the entry of dust particles, faces the fan blast. The outlet of this cooling system is below the engine pan.

Batteries are now located in the right front fender ledge (left for export), under a cover which follows the lines of the fender apron. A similar box on the other side serves to store skid chains and similar articles. The six-point engine mounting applied to the Cadillac eight last year is now also found on the LaSalle.

On the muffler tail pipe there is a welded-on "resonator" pipe, which functions for the exhaust in the same manner as the intake silencer for the intake system. The muffler develops less back pressure and in combination with the resonator gives a quiet exhaust.

Ignition is now of the full automatic type. A timing "dial" is provided at the distributor, however, for rapid adjustment of the spark timing in service. Coils on the eights are now back of the dash. All relays, for horns, lights, etc., are now located in a control box back of the dash inside the front compartment, where they are readily accessible by removing a cover plate.

With the adoption of automatic clutch operation, clutch dimensions have been increased. In the Cadillacs and LaSalle the engagement regulator is con-



Shock absorber, showing ride-control mechanism in section

trolled by throttle position rather than by gear position in the transmission. Five bleeder sizes in all are provided for this regulator. It functions only during the last part of the piston stroke so that the rapidity of piston movement up to the point of beginning of engagement will not be reduced. The vacuum line for the operation of the mechanism is relatively large in diameter and extends to both intake manifolds. The main control valves in the system are of the Buick type, there being two plungers, the first of which opens the vacuum line, ready for operation, when the foot button is depressed.

This button is located slightly under the clutch pedal, so that if the car is driven normally without use being made of the vacuum clutch, depression of the clutch will also open the vacuum line and remove the load from the clutch pedal.

The brake booster (introduced last year) operates off the same vacuum lines as the automatic clutch. While the booster is operated by a diaphragm, the clutch is actuated by a piston sliding in a cylinder. When the foot is removed from the accelerator—the control button being down, of course—the clutch disengages. When the accelerator is depressed again, the piston and clutch plates rapidly approach the point of engagement. As this point is reached the remainder of the travel is governed as to speed by the accelerator position. If the accelerator is wide open, engagement is relatively fast for a quick getaway.

The less the accelerator is depressed, the slower the engagement. The entire operation is designed to provide the maximum of smoothness of operation.

Owing to the additional requirements placed on the vacuum in the intake manifold and to insure consistent wiper operation, a separate diaphragm-type vacuum pump is now provided on the engine for operating the windshield wiper. It is driven off the rear of the camshaft.

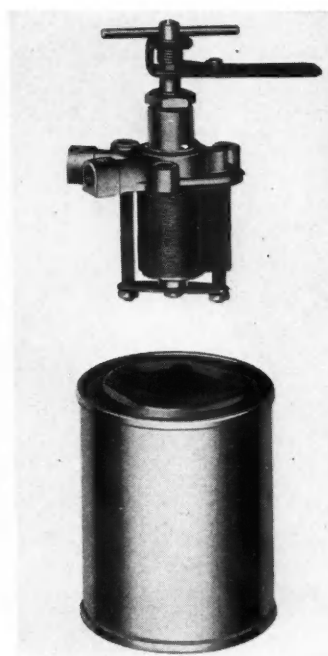
All gears for forward speeds in the transmission are of the constant-mesh, helical type, and all tooth profiles are ground and lapped. Altogether there are now nine ball and roller bearings in the new transmission, all bearings except that of the reverse idler shaft being of the anti-friction type.

Operation of the synchronizer mechanism has been improved to obtain a quicker shift with hot oil without clashing. There are now two yokes, one for each synchronizer, instead of the single yoke. This assures ease of service adjustment from outside the transmission. Improvements have been made in the plunger valve design itself for better operation with varying oil viscosities.

On the eights the propeller shafts are larger than formerly, and the torque tubes are now manufactured

by rolling and projection welding of the seams. Rear axles are lighter, in spite of the increased tread of 61 in. and cast iron brake drums. This desirable reduction in unsprung weight has been obtained mainly through the use of smaller wire wheels (compensated for by gear ratio changes) carrying English-type drop-center rims. The change permits a lighter hub design.

Wheels are now 17 in. diameter on both eights. Front treads are wider, now being 59 $\frac{7}{8}$ in., for shorter turning radius and increased stability. Frames have a deeper side rail section (9 in.) than formerly. Two welded-up complete box-section members are riveted to the side bars just back of the transmission and one of the front rear-spring outriggers. They permit a reduction in the total number of cross-members and therefore of a reduction weight without sacrifice in torsional rigidity.



This shows the self-cleaning oil filter, the handle of which is connected to the starter pedal

The front bumper, which is doweled to the frame horns, virtually acts as an additional cross member. Front frame horns are also of box section for rigidity. The radiator cross member has wider gusset plates, especially toward the rear, where the engine mounts are located on the gusset plates. Frames are of the double drop type.

An unusual amount of work has been done to further improve the riding qualities of these cars. In addition to the adoption of a five-position Delco Products ride regulator of new design, the springs have been materially altered. The distance between the axle centers and the center of gravity of the car was determined experimentally and the relationship worked on for ride improvement. One of the main results of the work was the reduction of unsprung weight by about 40 lb. at the front and 100 lb. at the rear. Springs are wider than formerly, and owing to their wider spacing there is less sidesway.

The new ride regulator shock absorbers work on the principle of pressure rather than orifice-size control.

That is, moving the control handle in the front compartment to a "firmer" position increases the spring tension on the shock absorber valves. This made possible a wider and more complete range of shock absorber control for each of the five available positions. An instrument is also provided on the instrument panel which is connected to the ride regulator system to show the amount of "firmness" or "softness" for which the shock absorbers are set. Shackles are of the same type as used on the 1932 Buicks.

Gas tanks are larger than formerly, with a capacity of 30 gal. on all chassis, giving a decidedly wider cruising range. In the steering gear, hour-glass worms and sectors are used. The steering wheel is of the three-spoke type, 18½ in. in diameter.

Cast Iron Brake Drums

Brakes have been materially improved by the adoption of cast iron drums made of electric furnace molybdenum iron of close grain structure. A latex-bonded brake lining is now used, with the length of the lining per shoe increased. The roller bearings used in the brake linkage last year are retained. Cable control has been substituted for rod control at the front end.

Optional compression ratios are now available in both the 12 and 16-cylinder Cadillacs, with the higher ratio (5.30 to 1) standard. On the 12 there is a new camshaft with the cams developed for quieter operation. The new carburetor is of the expanding air-valve type, with larger intake silencers combined with air cleaners. These are now mounted on the engine side of the dash (two on the V-12 and V-16) and are connected to the carburetor air intakes by flexible chrome-plated tubes.

Fan speeds have been increased for better cooling on both engines, and blade contours have been altered for quietness. This takes the form mainly of greater curvature for the trailing edges at the blade tips. They operate in a ring shroud as on the eights.

The following changes have been made on the 12 and 16 as well as on the eight-cylinder engine:

- Fuel pumps now used instead of vacuum tanks, and located at the left front for cooling.
- Generators of higher capacity and with forced draft cooling system.
- Larger diameter piston pins (7/8 in.)
- Rolled bronze pin bushings in connecting rods.
- Fuel line outside of frame.
- Vacuum pump added for windshield wiper operation.

Pistons tin-plated on the V-12 and V-16.

Pistons now have two oil rings on V-12 and V-16.

Batteries increased in capacity to 160 amp.-hr. on V-12 and 190 on V-16.

External appearance of engine is neater.

All the chassis improvements already discussed in connection with the LaSalle and Cadillac eights are also to be found on the V-12 and V-16, of course. On the V-16 the frame section is 10 in. deep, and 18-in. wheels are used on this model.

A self-cleaning oil filter of Cuno manufacture is now to be found on the V-12 and V-16. This filter, it will be remembered, is of the disk type. The handle on top of the filter, which is used to turn the disks and scrape off sediment, is connected through a ratchet to the starter pedal, so that every time the pedal is depressed the disks are partially turned. Sediment drops to the bottom of the filter, from which it is drained about every 12,000 miles.

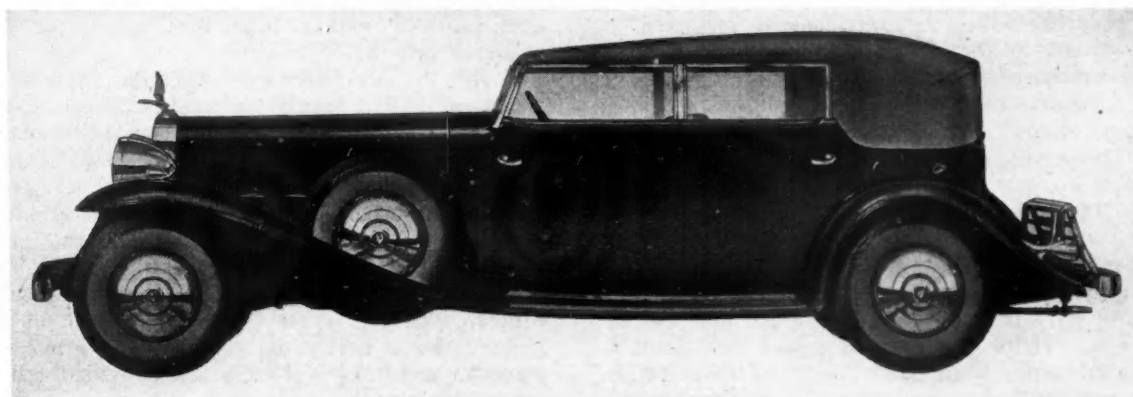
Cadillac-LaSalle Bodies

In addition to the rather apparent appearance changes made in the bodies for the 1932 Cadillac and LaSalle lines, there are numerous detail refinements. A large center-type cowl ventilator is now provided. Tandem windshield wipers are standard equipment. Radiator screens or grids are of the built-in type. They have both horizontal and vertical vanes assembled with front faces flush, and have a chrome facing sweated on to the front side.

Dual bugle-type horns are standard on all cars, including LaSalle. These are mounted through the headlamp brackets. It will be noted that there are no tie-bars on the Cadillac models, the object being to permit an unobstructed view of the radiator front. On the LaSalle there is tie rod between headlamps carrying a monogram. Built-in trunks are found on several models.

Sedan models now have only the driver's half of the seat adjustable, with the seat back proper forming a pillar brace, thus adding to the rigidity of the body. Window and trim moldings are of solid walnut and have their corners relieved by large fillets, for a more finished appearance.

Cigar lighters and clocks are standard equipment. Pockets have been removed from the doors and are now located in the rear compartment arm rests. Dual tail lamps, fender-mounted, on all cars are of the combination stop, tail and reverse light type. Lenses



Cadillac all-weather phaeton

carry reflex elements as a safety feature. Chrome plate covers are available for the wire wheels used as standard equipment, affording a ready change to disk wheel appearance.

Front spring horns are neatly concealed with lacquered sheet metal. There is a double bead on the fenders of the various Cadillacs. Six-door type ventilators are found in the 8 and 12-cylinder hoods and seven-door ventilators on the V-16. Running boards are curved slightly, instead of being flat and blend better into the sweeping front fender lines.

Rear ends have been attractively cleaned up by curving the inner side of the rear fender upward to merge into the gas tank valence, where sharp corners again are eliminated. With the adoption of the more sloping, visorless windshield, universally an adjustable interior visor is now used, affording protection against sunlight through the door windows as well as through the windshield.

Insulation against heat and noise has been further extended in the cars. Dashboards carry thicker (1 $\frac{1}{4}$ in.) insulation, and the exhaust pipes on the V-8's are lagged and covered with sheet metal on the outside of the insulating material for combined protection against heat and noise.

Ash trays are located on the top center of the instrument panel on a ledge back of the windshield. Instruments all have convex glass lenses and are of the large face airplane or pointer type. All instruments are located at the left of the panel, with a glove or package compartment on the right. A pull light for front compartment illumination is located at the center of the instrument panel.

While the lighting system on the LaSalle remains of the conventional type (with two 32 cp. twin-filament bulbs), that on the Cadillacs is entirely new. There are in all five positions for the headlight switch, designed to meet the following conditions:

1. Country driving.
2. Country passing.
3. City driving.
4. City passing.
5. Parking.

The guide lamps used on these cars contain a new three-filament bulb. Technically the system is a four beam assymetrical headlight system, the four beams being of irregular or non-symmetrical road pattern. The three filaments are respectively 21 cp., 21 cp. and 32 cp., the latter filament being at the top in the right-hand lamp and at the bottom in the left-hand lamp.

For "country driving" three filaments are lighted, giving a rather even road pattern. These filaments are the two central 21 cp. filaments and the 32 cp. filament in the right-hand lamp. This latter filament has a wider and higher beam pattern than the corresponding filament in the left lamp, due to its lower position.

For country passing, with a car approaching, the 21-cp. center filament in the left-hand lamp is lit, for general illumination of the right side of the road; the 21-cp. upper filament in the right-hand lamp, for full-width illumination, and the 32-cp. filament in the left lamp which throws a strong beam to the right side of the road, below the oncoming driver's eyes.

For city driving the 21 cp. center filaments are illuminated as in conventional twin-beam headlamps in the upper beam position. The intensity of illumination is lower, however, due to the smaller candle power of the filament. For city passing, the same conditions prevail as for country passing, except that the 21-cp. center filament in the left-hand lamp is not lit.

The bulbs are of the fixed focus type. It will be noted that the lower filament in the left-hand lamp bulb (21-cp.) is not used under any of the above conditions. Bulbs are interchangeable right and left, but are turned upside down in one lamp as against the other. Bayonet pins and indexing sockets prevent incorrect insertion.

Reflectors are not interchangeable between headlamps, nor are the lenses, as right and left sides are separately designed to provide the exact character of illumination and beam pattern required. Service adjustment of headlamps should be made in the normal manner with the beams in the "city driving" position.

Oldsmobile 1932 Six and Eight Line

(Continued from page 9)

lamps develop the maximum of 21 cp. Balancing the license bracket over one tail lamp is an Oldsmobile emblem over the other.

Shock absorber action is controlled by means of a lever convenient to the driver, which serves to vary the spring pressure on an auxiliary "pop-off" valve in the Delco Products shock absorbers.

Ventilator doors are now used instead of hood louvers. The windshield has a slope of 10 deg. with a 7-deg. pillar angle. This permits the use of a door vertical to the top hinge (near the belt) and sloping from there upwards. The wiper is concealed and the shaft extends through the header rather than the frame, for protection against leakage.

Wood and wire demountable wheels are optional at no extra cost. There is a large top cowl ventilator, a chrome-plated center bead from the tip of front fenders to the parking lamp, the latter also being chrome-plated, and chrome-plated protecting strips at the running boards. Tires are now of 6.00-in. section on 17-

in. wheels. Chrome-plated twin horns are standard and are mounted below the chrome-plated, bullet-shaped new headlights. The hood has a single central locking-and-lift handle, the hood locking to the dash and radiator rather than the frame, for improved radiator bracing.

Inside the cars there are adjustable seats of the sliding type, added insulation against external temperature and noise, and universally mounted interior visors. Cigar lighters and ash trays in the front compartment are standard equipment. Steering wheels are of the three-spoke type. The ignition key lock is slightly recessed so that its face is illuminated by the indirect instrument board lighting. The speedometer is of the large-face pointer type, and is located to one side of the center, with the water temperature and oil pressure gage under a balancing glass on the other side. A place for mounting a clock is also provided, but the latter is not standard equipment. When not used an Oldsmobile emblem is inserted. The rear-view mirror is of the two-position type.

JUST AMONG OURSELVES

Santa's Salesmen Not so Hot

MADE an unpremeditated investigation of retail sales methods the other day by reason of having to do some Christmas shopping in person and being without advance ideas of what to buy. Having started, we became so much interested in studying the varying abilities of different sales people that we got to showing great interest in products which we hadn't the slightest intention of considering to purchase. Before we got through we covered several floors of two big department stores thoroughly, and several small shops.

We didn't get our Christmas shopping done, but we did have an interesting afternoon.

We exposed ourselves to sales effort on electric refrigerators, electric sewing machines, electric gadgets that mix things up in the kitchen, electric toasters and other electrical appliances, books, juice squeezers, furniture, electric clocks and innumerable other whatnots.

Looking Them Over Brings it Out

OUTSTANDING conclusion of this one-shot survey was that automobile salesmen aren't nearly so far below the average retail sales level as most of us in this business are prone to believe. Plenty of sales people retailing much simpler products than automobiles know relatively less about their merchandise than does the average automobile salesman—who doesn't know too

much. This seemed true even after eliminating those who clearly had been injected into their jobs to fill in during the Christmas sales rush.

A young lady selling electric alarm clocks couldn't find the knob which should be turned to set off the alarm. An electric refrigerator salesman balled us out in no uncertain terms when he found that we were not an immediate prospect; said he was working entirely on commission, had to take his turn in line with the other salesmen and that business was so bad he could scarcely earn anything anyhow.

Electric sewing machines were in hands of rather elderly ladies in both stores which we visited. Neither were much on sales approach or closing. But both knew their merchandise from A to Z and gave one a strong feeling of confidence in the opinions which they expressed.

Sales people in book departments and book stores rated high on knowledge of products, interest in work and general intelligence.

But lack of adequate stock was evident in several departments and several stores. "We're out of those" was fairly common. "We have only this one model or this one color in stock" was even commoner.

Above all things, however, we were impressed with this thought: If it is so difficult to train and keep going first class sales people for relatively simple products, selling for relatively small sums of money, how vast and how challenging must remain the automotive industry's task of getting the right com-

bination of geewhiz and factual knowledge into the minds and mouths of its retail representatives.

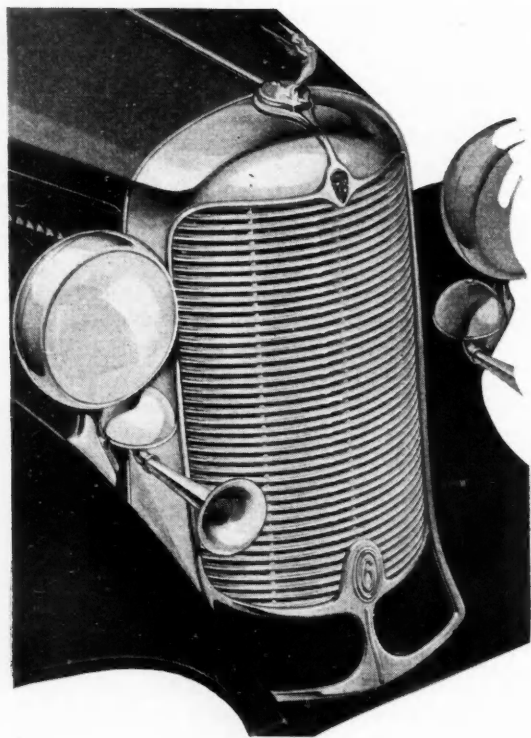
Despite economies and despite budget cuts, the work of training retail automobile salesmen must be amplified if our industry is to get a maximum share of the consumer's dollar. And we will need that maximum share if we are to lead the way back to prosperity.

Stimulating News From N. McD.

JUST a line of interjection to tell everyone who sent us Christmas greetings how very much we appreciated them again this year, and how much real pleasure we still are deriving from them. Several very beautiful etchings will continue to give us pleasure for a long time, while we look forward to chuckling again at the cleverness of some of those cards which so bravely are designed to help laugh off the depression. Among the most welcome of the greetings which came to us was one which bore no picture nor drawing. It was just a plain telegram from Neil McDarby, vice-president in charge of sales of Auburn, wishing us the season's greetings and saying that he would see us at the New York Show. To hear of such recovery from serious illness by an old friend is stimulating news indeed.

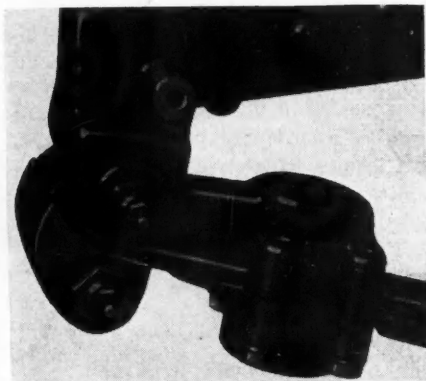
Change Your Mind With the Calendar

SOME months ago we pointed out that a mere change in the date on a calendar cannot actually make any change in the economic picture. It doesn't. Yet, if used as the occasion for making a change in one's individual thinking, in one's individual approach to his business problems, a change in date on the calendar can do much to help you help your own business. Here's hoping, anyhow!—N.G.S.



Detail of the front end showing the new radiator front to advantage

Kick shackles are used on the 1932 DeSotos to prevent wheel fight



FOR 1932 the DeSoto Motor corp. presents a single line of cars, a six, with novel body lines, longer wheelbase, floating power, "centrifuse" brake drums, increased horsepower and X-type frame. Intake silencers and quiet second-speed transmissions are other new features. Treads are slightly wider than formerly, tire sections are larger and wheels smaller in diameter. Automatic clutches, operated through the accelerator pedal, are offered as optional equipment at extra cost in addition to the free-wheeling unit located at the rear of the transmission. When thus equipped, the free wheeling lockout also controls the lockout of the automatic clutch mechanism. When both are "free" to operate, the transmission is completely disconnected both at front and rear, enabling preselecting of gears while either standing still or coasting.

Of major interest in the new DeSoto six are the new bodies. Their features include a curved radiator front reminiscent of the race track; attractive one-piece fenders forming the fender sill, and concealing the front end of the chassis; a hood which extends to the base of the sloping windshield, and eliminates the con-

Floating Power Drives

Intake silencer on engine and quiet second-speed transmission used. Automatic clutch control available

ventional cowl; concealed hood latches with a single central-control handle; two body ventilators located in the top of the hood; a central chrome-plated strip on the windshield glass to form a continuation of the chromium-plated center hood hinge, and giving the impression of a split windshield, and a number of other interesting new details of body treatment.

The new six is offered in two lines, on the same chassis. The standard line includes a five-passenger sedan, business coupe, rumble-seat coupe, business roadster (without rumble seat), two-door sedan and five-passenger phaeton. On the custom line

are to be found a rumble-seat roadster, rumble-seat convertible coupe, a five-passenger four-door sedan and a five-passenger convertible sedan. The latter is a particularly attractive model. As on the convertible coupe, provision has been made to enable the folding of the top flat with the body sides for neat appearance. Seats are piped with leather contrasting with the upholstery material in an attractive manner.

The curved radiator grilles, with horizontal main vanes, are assembled into a single unit by welding and are built into the radiator shell to form the curved front, the vanes being lacquered to match body colors. Radiator shells are quite wide and chromium-plated, as are the bowl-shaped lamps, whose rims curve inward toward the front to eliminate sharp corners.

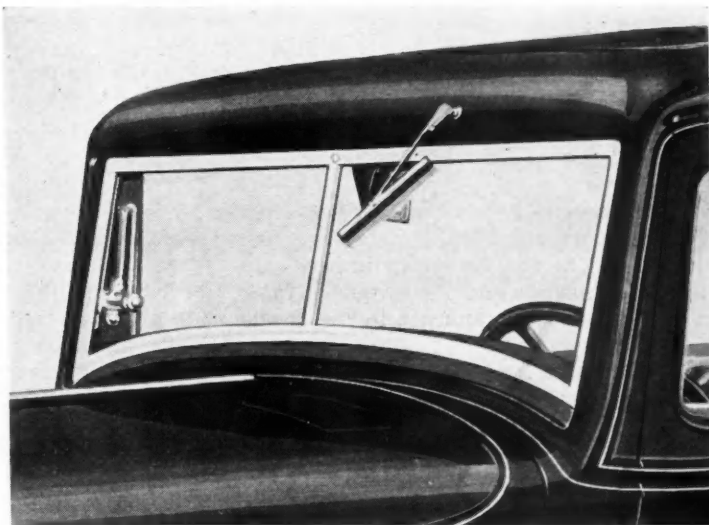
Fenders are quite deep in front to conceal the chassis, and in addition frame horns are concealed with sheet metal finished to match the fenders. Conventional hood louvers are retained, but are given a novel touch by shortening those near the hood-lift handle. The extension of the hood to the windshield, with the rear edge sloping forward and downward to parallel the

Swanky New DeSoto Line of Sixes

front pillar line, gives an impression of greater engine compartment length. The hood, of course, overlaps what would otherwise be the cowl.

The two "cowl" ventilators, of course, had to be installed in the hood proper. The toggle arms of these ventilators slide out of forked rods when the hood is raised to avoid interference. Instruments on the panel include a dash gasoline gage and engine heat indicator. Interior dimensions, of course, are increased over those of last year's DeSoto models by virtue of the longer wheelbase. Body insulation has been worked out further, and includes even an insulating back to the rumble seat in the two-passenger models. Doors in closed models can all be locked from the inside, but both left and right-hand front doors automatically unlock, if they are closed from the outside, to prevent the driver from locking himself out of the car. The right front door, of course, locks from outside with a key.

Power has been increased in the engine by a $\frac{1}{4}$ -in. longer stroke than formerly, bore and stroke now being

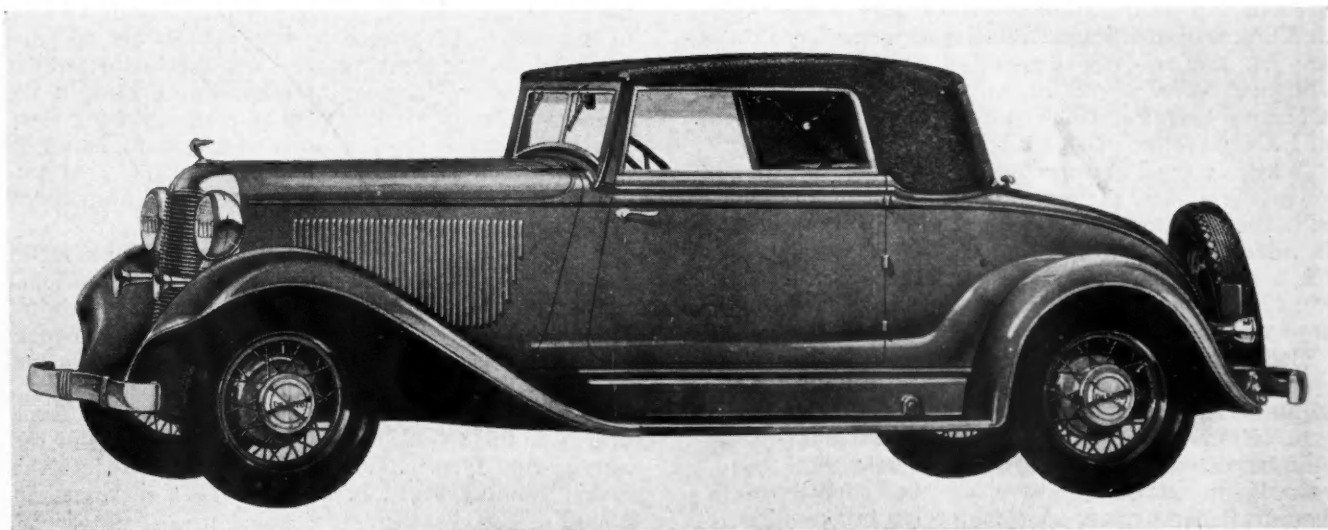


Windshield detail showing how effect of split shield is produced by the use of a chromium-plated central molding. Note the rounding off of the header

$3\frac{1}{4} \times 4\frac{1}{4}$ in. for a piston displacement of 211.5 cu. in. and a horsepower peak of 75 at 3400 r.p.m. There is a new Ball & Ball carburetor of the plain tube up-draft type. An AC intake silencer combined with an air cleaner is carried at the intake. Radiator cores are somewhat deeper than formerly, although there is little change in the total water capacity of the cooling system.

In principle the floating power mounting used on the new DeSoto is the same as that which has been used on the Plymouth since its introduction this summer. The rear end of the transmission is cradled in a

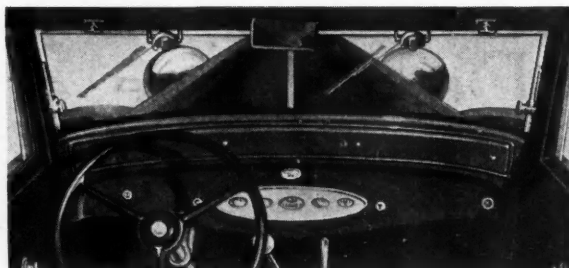
DeSoto convertible coupe
one model of the custom line



rubber mounting carried on a frame cross-member, while the second support is located fairly high up at the front of the engine on a bracket also supported from a cross-member. A line drawn between the centers of the two mountings passes through the center of gravity of the engine, so that there is just as much weight above as below this imaginary line about which the engine is free to rock, limited only by the rubber in the mountings and the torque springs, extending from the side of the crankcase to the frame side rail.

The new helical-gear quiet second transmission was adopted for the DeSoto six about September, but with limited production since that time, virtually constitutes a new feature for the 1932 line. Axle and propeller shafts are virtually unchanged, but the rear-axle gear ratio has been raised from 4.33 to 4.62 to 1 to increase the acceleration.

Frames, however, are entirely new. As mentioned, they are of the X-member type. Front and rear legs of the X are quite long and extend to the frame side rail at a point forward of the transmission. The transmission support cross-member is thus located between the front legs of the X-member. While kick-ups, front and rear, are practically the same as last year, the side-



Interior detail showing the instrument panel, above which is the free wheeling control

rail section is deeper than formerly, being now 6 in., permitting the use of a lighter ($\frac{1}{8}$ in.) stock. The result is a frame but little heavier than formerly and claimed to provide four to five times the former torsional rigidity.

Other minor changes in chassis specifications include slightly longer (35-11/16 in.) rear springs, and a change in front axle caster to $1\frac{1}{4}$ deg. Wheelbases have been increased 3 in. The tire section is now 5.50 in. on custom and 5.25 in. on standard body models, the former on 17 in. and the latter on 18 in. wheels, either demountable wood or wire. Left front springs carry a "kick-shackle" to eliminate wheel fight.

In addition to better grades of upholstery and body trim materials, the custom line includes such features as twin chromium plated horns below the headlamps, cigar lighters, catalin knobs on hardware, including the gearshift lever, lacquered sheet metal, double windshield wipers, chrome sill plates, aprons for the wide garnish moldings, twin stop lights—one on each rear fender, and a net type package carrier mounted alongside the sun-visor. Rear-view mirror brackets, steering-post brackets, hand brake and gear shift lever are also chromium plated on these models.—A. F. D.

Trusses Stiffen Hupp Frame

(Continued from page 5)

to prevent leaks and pumping of air, parking-light bulbs now located in headlights, spring leaves rolled to a thinner end to prevent squeaks and distribute the load more effectively, rubber caps over the gearshift lever housing as a seal against oil and to reduce vibration, larger batteries, new Burgess mufflers with lowered back-pressure, built-in grilles, larger gas tanks, and thermostatically controlled shock absorbers. These are of the recently introduced Gabriel type (see *Automotive Industries* of Aug. 29), and incorporate a balance thermostatic valve for viscosity adjustment, and a wide range of action.

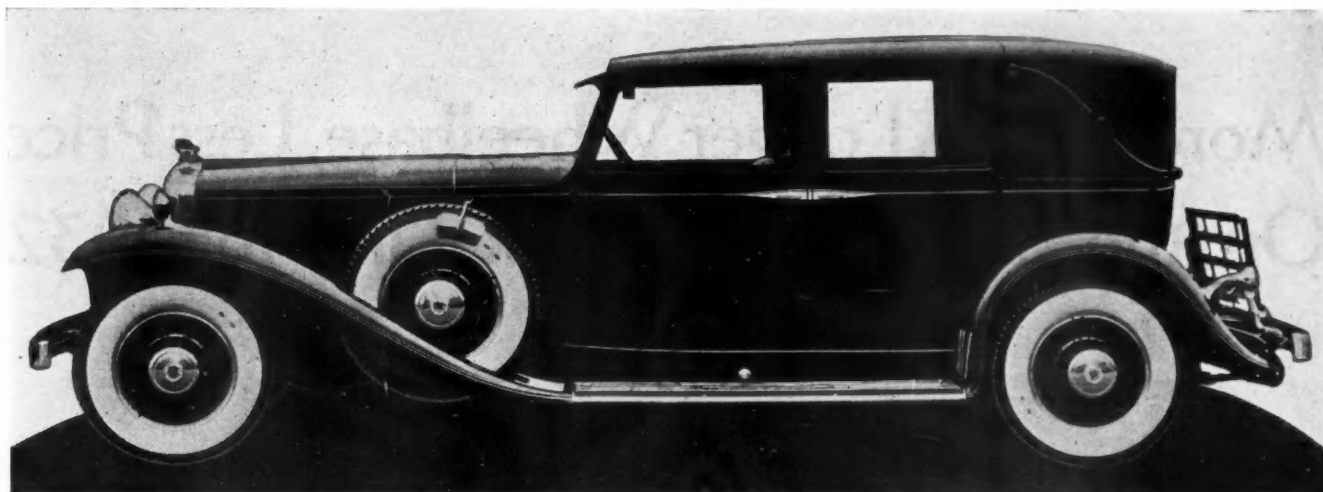
While external changes are not as radical in the six as in the eights, the list of important improvements in the accompanying table gives an idea of the increase in value of this car. The longer wheelbase made possible a more roomy body and the rear quarter panels were lengthened. These panels now have larger windows and the rear windows are also larger.

Bodies are more conventional in this model, although a good proportion of the stabilizer worked out for the eights is also carried over into the six-cylinder structure. Frames are also conventional. Horsepower has been increased from 70 at 3200 to 75 at the same speed, by a $\frac{1}{8}$ in. increase in bore, and the adoption of a downdraft carburetor. A combination intake silencer

and air cleaner is now found also on the Six models.

Transmission and free wheeling changes apply equally to six and eight-cylinder cars. Propeller shafts are of the Mechanics Machine type. The axles on the six have been increased in size. Frames have deeper side channels than formerly. Clutches are larger and have a spring cushion center. Wheels are now 18 in. in diameter. Five wood or wire wheels are optional equipment. The steering gear is a Ross double roller cam and lever. Longer springs are carried in the latest type Tryon shackles with increased bearing area. The new Gabriel shock absorbers are to be found on the six as well as on the eights. A manifold heat control, manually operated from the dash, has been added to the six.

In the bodies are to be found improved sheet metal lines, with rolled edge fenders of more conventional appearance than those on the eight. Fender parking lights are retained on this model. Instrument panels are similar to those used on the eights, but are not recessed. The radiator front is now of the Vee type. Body insulation has been improved along the same lines as on the eights. Front seat adjustment is of the same sliding type. Radiator grilles are built into the shell. Running board bracing has been increased in strength.



The Stutz Prince of Wales, a brougham-limousine by LeBaron, mounted on a DV-32 chassis

Prices Reduced on 3 Stutz Lines With Insulated Bodies, for 1932

THREE complete improved lines of Stutz automobiles for 1932 are offered at new low prices, in some cases as much as \$1,200 under the figures of comparable models of last year.

The DV-32 with the dual valve, double overhead camshaft motor* has 23 improvements, including synchromesh transmission and optional free wheeling. There are 36 custom and standard body styles of this model, on all of which prices have been substantially lowered in keeping with the times.

Stutz also announces at this time the new SV-16 line, the famous Stutz straight-eight which has been in the process of development for more than six years. This is the latest model of the well-known Safety Stutz. New body lines and many new mechanical improvements at greatly reduced prices are offered in the SV-16 line. A choice of 35 custom and standard body styles is available on this chassis.

Four distinctive body types are available in the new LAA line, the lowest price Stutz ever built. These bodies are built on a 127½-in. wheelbase. A 127½-in. chassis, with the LAA six engine, is also available.

The 1932 DV-32 and SV-16 bodies are insulated against heat and cold and deadened against the admission, origin or transmission of noise.

Before any upholstering or painting is done upon the body, the entire inside is sprayed with an emulsion of asphaltum and asbestos. This dries to form a layer approximately ¼ in. thick. This material fills up interstices between the framework and panels, as well as between different parts of the framework, preventing body squeaks, and dampens any tendency toward vibration in the metal panels, thus preventing resonance and drumming.

In addition to this sprayed insulation, the passenger

* Description of DV-32 engine, page 61, Jan. 10, 1931, *Automotive Industries*.

side of the metal body dash is fitted with a 5/16 in. layer of soft texture fiber composition board. This absorbs low frequency noises which would otherwise be transmitted from the engine compartment through the dash into the passenger compartment, and serves to keep down the temperature of the driving compartment. Over the top of this insulating board is fitted a cardboard finishing mat covered with imitation leather to match the cowl points.

On the engine side of the metal body dash is installed a similar soft texture fiber board. Over this is fitted a ½ in. asbestos mill board. This asbestos board serves as a deadener of high frequency sounds, and heat insulator.

Graham Six Continues in Line

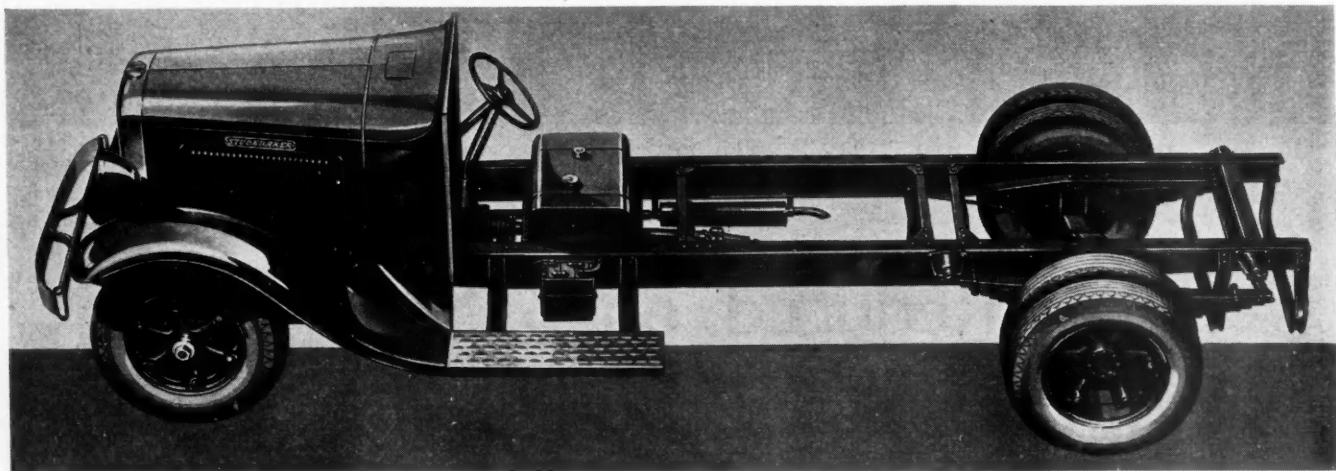
THE former Prosperity Six has been revised and will be continued under the name of the Graham Six. It now comes with tires of 5.50 in. section on 17-in. diameter rims, instead of 5.00-in. tires on 19-in. rims, thus bringing the car slightly lower to the ground. Prices on this line range from \$765 to \$785.

Grade "Torque Converter"

Correction

OUR attention has been called to the fact that the Grade device described in our issue of Nov. 21, last, is not a torque converter but a fluid clutch. In such a device the torque on the driven member cannot be greater than the torque of the driving member.

More Power, Longer Wheelbase, Less Price On the Studebaker Truck Line for 1932



New 2-ton Studebaker truck powered by 75 hp. engine is available in three wheelbases—141, 153 and 165 in.

THREE new truck models having more power, longer wheelbases and lower prices than previous models are Studebaker's bid for 1932 commercial car business. Starting with a price of \$695 for the 1½-tonner and following up with \$895 for the 2-tonner, the trio is completed with a price of \$1,350 for the 3-tonner, the lowest price recorded in the 3-ton classification of *Commercial Car Journal* specifications. Studebaker also has the honor of being among the first big manufacturers to adopt the S.A.E. recommendations for dimensions from back of cab to center of rear axle in order to standardize body mounting dimensions.

Horsepower has been increased to 75 at 3200 r.p.m. in Studebaker's new truck 3¼ x 4⅝-in. six, which powers all three of the new truck models. Besides being ½ in. longer in stroke than the former six, several engineering advancements have been incorporated in the powerplant. Pistons are electro-plated cast iron, bringing two dissimilar metals into contact; crankshafts are doubly balanced, counterweighted and equipped with Lanchester vibration dampers; engine mountings are rubber and main bearings are steel-backed, babbitt-lined. Careful balancing, matching and fitting of parts are painstaking requirements in the assembly of the new six. Piston and connecting rod assemblies are matched and balanced to ⅛ of an ounce and crankshaft and pistons are held to a tolerance of .0005 in.

Another new engine feature which makes an outside oil filter unnecessary is a floating intake, located in the crankcase, which feeds clean oil to the pump. Fuel is fed by pump from a 20-gal. tank to a Stromberg carburetor. Cooling is by flat-tube type radiator. Air

cleaners and governors are standard on the two larger models.

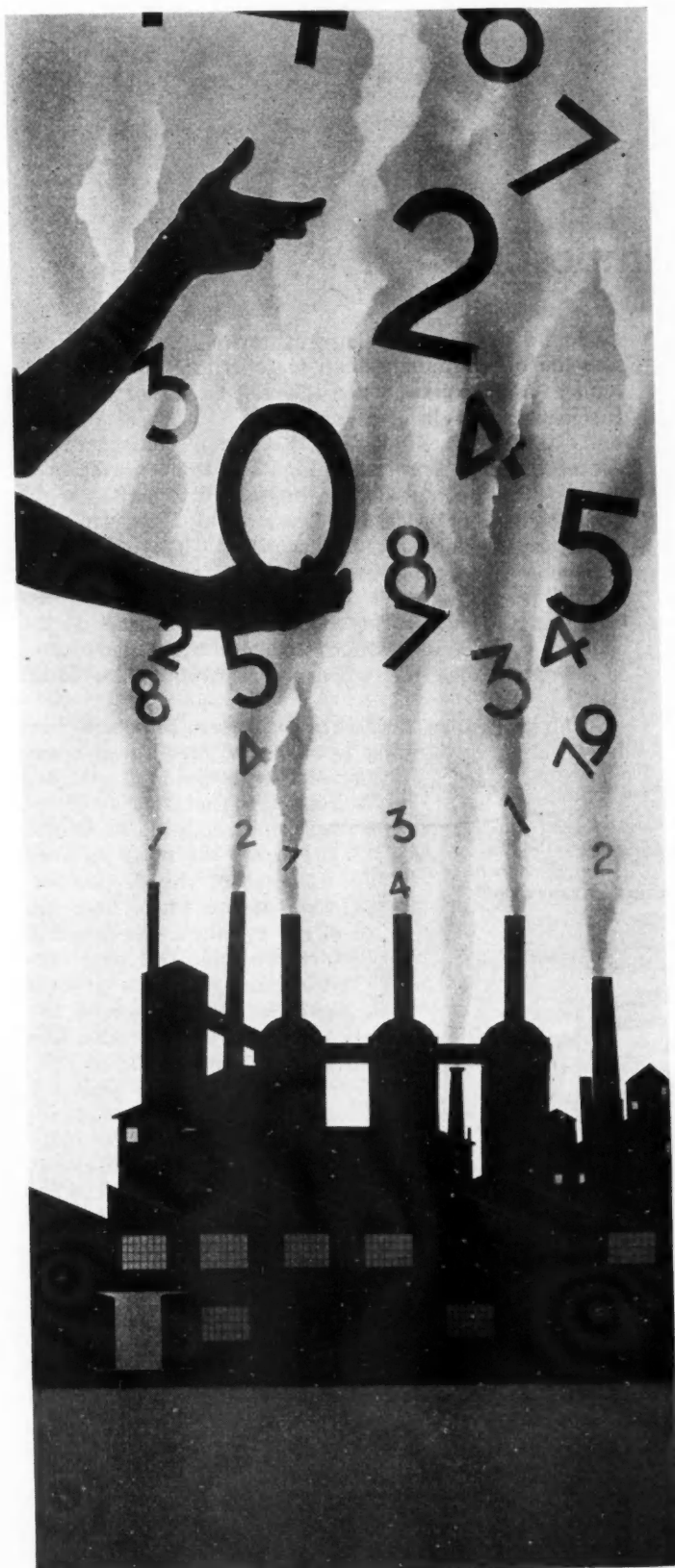
While four-speed Warner transmissions characterize the line, additional pulling power is obtained in the 3-tonner by a two-speed auxiliary transmission with a 1.52 gear reduction mounted amidships. This, together with one standard and four optional rear axle ratios, gives the purchaser a wide choice to meet most any operating requirement. Special bevel drive full-floating rear axles are employed on all models, a Clark in 1½-tonner and Timkens in the remainder.

Frames range from 6 to 8 in. in depth, according to capacity. Main cross-members are full channel section and gusseted at points of stress. Special attention has been given to spring equipment. Rear springs are carried on outrigger type hangers of sturdy design riveted to the frame. Auxiliary springs are standard on the 3-ton tractor and available at extra cost on all other models.

Bendix four-wheel, two-shoe, cable-controlled type brakes are used throughout the line. The 3-tonner, however, carries in addition a BK booster. Heavy molded lining, ¼ in. in the lighter models and ⅜ in. in the 3-ton, is used.

A smart cab as well as a full line of stock bodies are offered on all chassis. The cab is of steel construction, with steel box section front corner posts, to which the separate all-steel cowl fastens. Sloping windshield and cowl ventilator gives a coupe front. Doors are 31 in. wide and weather-stripped; windows are 25 in. wide and 18 in. deep. Seats are 48 in. wide and comfortably upholstered.

Smoke Turns Into Figures at Year's End



Only the records remain;
their collection and inter-
pretation proceed without
interruption

ONE of the most valuable compilations of statistical and mechanical data collected and published for any industry is the annual statistical issue of *Automotive Industries*. For thirteen consecutive years this publication has gathered facts and figures of production, sales and exports from the world-wide markets of this industry, and has published in ready-reference form detailed specifications of passenger cars, trucks and aircraft of domestic, British, German, French, Italian and other foreign makers.

The Fourteenth Annual Issue, which will be published Feb. 27, will be the most complete handbook of vital automotive information ever compiled.

During the past year, members of our editorial staff have discussed possible improvements with nearly 100 men whose chief function is the gathering and interpreting of statistics. Car company statisticians, bank and Federal Reserve economists and scores of engineers have given us the benefit of their experience in helping us to offer to this industry an issue of greater service than ever.

New tables of data, designed to tell their stories more quickly and more dramatically, will be incorporated with the compilations of fundamental facts which we have brought up to date from year to year.

Figures of the dollar value and number of cars, trucks and parts imported from the United States to the Azores and Madeira Islands, Estonia, Germany, Gibraltar, Alaska and the Argentine, for example, are being checked and arranged by country and continent.

Syria, Iraq and Burma have all taken their share from American factories, and are listed to give the reader a working knowledge of the extent and relative sizes of the U. S. automotive markets across the seven seas.

This week complete motor vehicle specifications, all translated into the English lb./in. system from metric measures, arrived post-haste from Germany, Belgium and Czechoslovakia. A week ago the last of the British, French and Italian car and truck specifications arrived and are now being prepared for our presses.

This year we expect to have more foreign aircraft specifications than ever, due to the cooperation of several of the foreign governments.

Every manufacturer of cars and trucks in the world has been asked to fill out the detailed forms which will tell at a glance the dimensions of his product. More stress has been laid upon material specifications this year, to give our readers a better picture of the design practice in this country and abroad.

With this vast amount of data, we have undertaken to interpret more engineering practice by showing trends of design. Engineers may know, by referring

to tables and charts, the trends toward multi-cylinder engines and increased horsepower. Here the story of valve location, compression ratios, types of final drives, types of clutches, types of ignition, types of propeller drive and structural and design factors of aircraft are told in terms of years.

In this issue, then, is presented briefly the factual story of production, sales and engineering development of the world's largest manufacturing enterprise, spiced with interpretative charts and trend tables, offering the industry a reference work of incomparable scope and value.

Deep-Drawing Beyond the "Impossible"

PERHAPS some of us are too close to them to realize the remarkable advances being made in shop practice. Deep drawing has seen revolutionary changes. Stampings which were impossible several years ago are routine matters today. Of course these improvements are not accidental; they result from the painstaking research and constant development which is a part of the program of every progressive industry.

In the field of deep drawing, the present high level of the art is due to the effect of many factors, chief of which may be:

1. Metallurgical control of deep-drawing steel.
2. Better knowledge of the behavior of sheet steel.
3. Utilization of more powerful modern presses.
4. Better shop practice based on the above.

Some of the best examples of current practice will

be found in the press shops of our body plants. Probably no other industry can match the stamping problems of a body plant when it comes to size of work and intricacy and bulk of dies.

At the E. G. Budd Mfg. Co., improvement in the art of making large stampings has come normally as the result of concentration on metallurgical research and good shop practice. Due to emphasis on their ideal, the development of the all-steel body, this company has had to cope with large stampings from the beginning. The most recent contribution to press lore was the successful commercial launching of the one-piece body-side which involved the development of a welding machine and a process for welding large sheets.

Analysis shows that this one-piece body side not only is a huge stamping by virtue of size but also em-

bodies individual sections which in themselves present difficult stamping problems. Probably the most striking example of this is the section at the wheel housing. Fig. 1 shows the general detail at this end with sections cut through several points. A close-up of the section at the rear axle line is found in Fig. 2.

These sections have much of interest to practical press-shop men. Note that the depth of draw at the wheel house is $7\frac{1}{2}$ in. Yet adjacent to this is a reverse draw all along the arc, $3\frac{1}{2}$ in. deep but relatively narrow at the mouth. It does not need much argument to show that the rear quarter is a sizable problem in itself. Coupled with the fact that it is a part of a single body side, it rates as one of most important process developments in the stamping field.

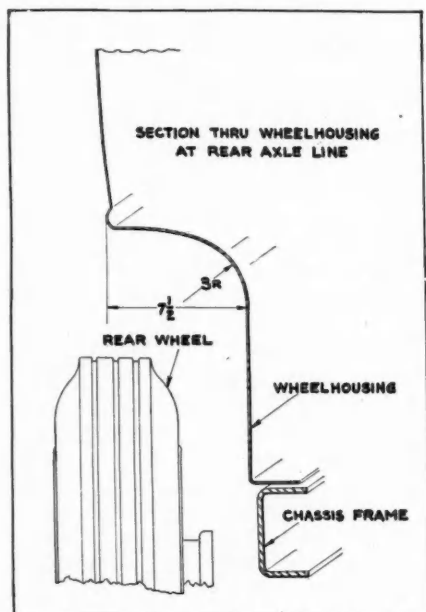
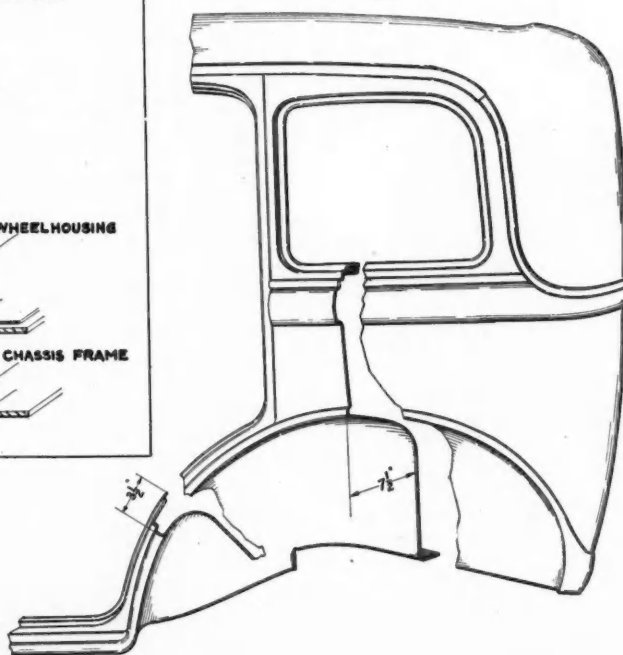
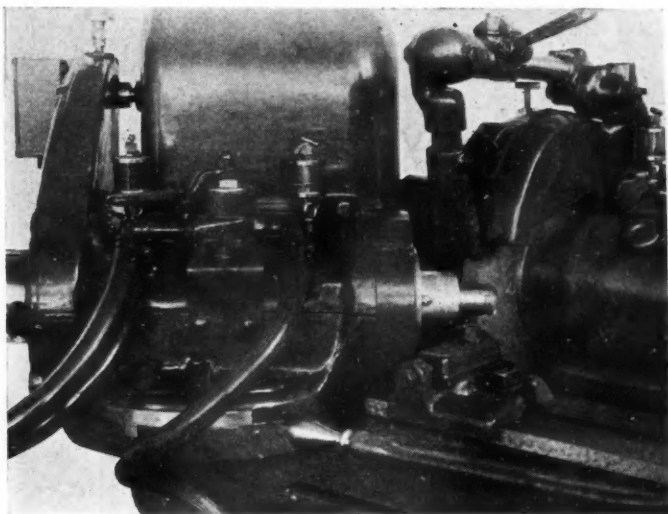


Fig. 1 (below)—Shows the general details

Fig. 2 (left)—Section at rear axle line





PRODUCTION LINES

A Landis 6 by 18 grinder, mechanical traverse, plain, equipped to grind the 40-deg. bevel on a synchronizing drum spring. Estimated production, 200 to 225 pieces per hr. for 1932 transmissions. Operation is semi-automatic. A spring is placed on the arbor, the lever at the front of the work head is thrown, thereby clamping the work. Then the long lever extending across the front of the machine is pushed away from the operator. This first starts work rotation and immediately following traverses the wheel across the spring. Spring tension pulls the wheel back to its original position.

The outside diameter of the same spring is ground with practically the same equipment. To do this the work head is set around to its normal position instead of at an angle, and the clamping of the work is accomplished with the main control lever extending across the front.

Rochester Helps

From a report by James E. Gleason, president, The Gleason Works, we learned of the program of Rochester manufacturers to alleviate future unemployment. The plan representing the minimum of what the companies will do has been put into effect by 18 companies. "They employ in normal times about 28,000 persons, and vary in size from one employing 13,000 to one employing 45 persons. They each agreed to begin in 1931 to set up an Unemployment Benefit Reserve in annual installments, up to 2 per cent of payroll, dependent on the degree of stabilization the company has achieved, and to maintain the fund at the level created by five such annual payments. In normal times, the entire expense will be borne by the company. During emergencies or extended periods of unemployment, all employees not receiving benefits will pay in 1 per cent of their earnings, the company paying in an equal amount of theirs."

Applying Pressure

Much of the success in hand or machine polishing lies in the application of the right amount of pressure. Certainly that's the secret of the polisher's art. At least that's what we are told by one of the experts. Can you enlighten us?

Just a Tip

Tool Tips for November, 1931, offers the following: "Many times it is desired to place identification marks on triangles and other instruments made from celluloid. Rather than try to cut the mark in

the celluloid, it is advisable to use anhydrous acetic acid. By writing or marking with the acid by means of a steel pen the marks will appear dull on the glossy surface. Coloring matter may be added if desired."

Standardizing Surface Quality

During the past year much discussion has taken place concerning the desirability of establishing standards for surface quality of machined work. Progress was charted from time to time in these columns. Now a complete resumé of available literature has been published in the A.S.A. Bulletin for November, 1931. Study it!

Heating Economically

Engineering information on the installation of unit heaters for factories will be found in catalog No. 636 recently issued by the Carrier-York Corp. An interesting feature is the analysis of typical design problems in installing Kroy Unit heaters.

Which System

Those interested in systems of tolerances for interchangeable manufacture should look up the A.S.A. Bulletin for December, 1931. Some of the technical differences of bilateral and unilateral systems are discussed in simple terms by H. W. Bearce of the Bureau of Standards. A reading of his article, "Unilateral and bilateral tolerances for machined parts and gages" will repay your effort.

Human Relations

The importance of human relations in industry is keenly summed up by an engineer, Robert D. Kohn, president, American Institute of Architects. There is a human side with which engineering must concern itself. For, "it seems to me that the very real achievements of science and engineering fail of their effect because the human side of the world's problems has been neglected. We have been absorbed in things. We have neglected to notice the effect of men absorbed in things on other men absorbed in things. Scientists and engineers (and all of the rest of us for that matter) must now concentrate on the study of the relations of man to man, of group to group and of nation to nation. We must find a way to understand the interrelation and the interdependence upon each other of men within each function of modern life and the interdependence of function upon function. When these relationships are better understood they will become clarified and then be more just."

Whither Patents

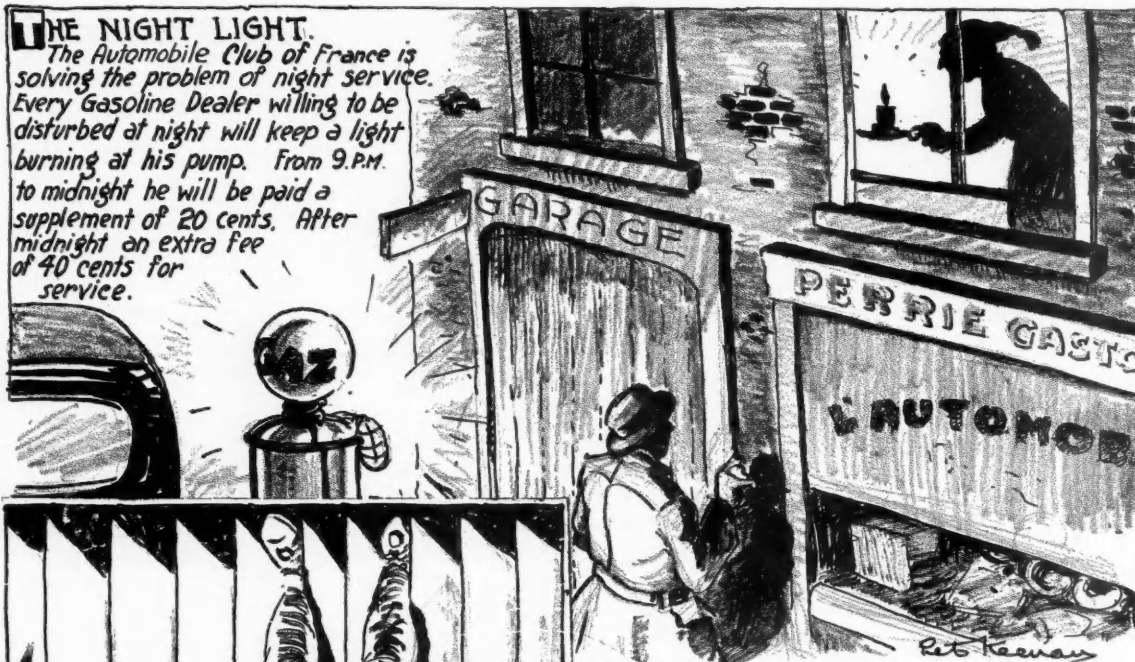
What will be the effect of the recent patent decision in the field of chrome plating? As we understand it, the patent covers some basic steps in production and may pre-empt new activity in the utilization of rustless steels.—J. G.

MANUFACTURING
MANAGEMENT
METALLURGY

Automotive Oddities—By Pete Keenan

THE NIGHT LIGHT.

The Automobile Club of France is solving the problem of night service. Every Gasoline Dealer willing to be disturbed at night will keep a light burning at his pump. From 9 P.M. to midnight he will be paid a supplement of 20 cents. After midnight an extra fee of 40 cents for service.



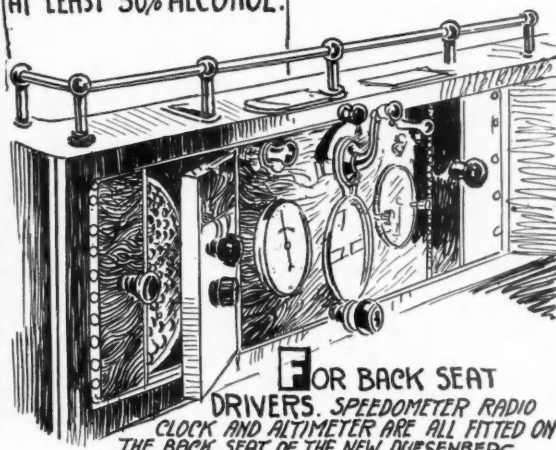
J. J. COUGHLIN AFTER MAKING A PARACHUTE JUMP LANDED ON A PICKET FENCE AND WAS SUSPENDED BY HIS HEELS UNTIL HE WAS REMOVED SOMETIME LATER UNCONSCIOUS. 1892.



999
WISCONSIN 1932

THIS SAME NUMBER HAS JUST BEEN ISSUED TO L. E. MEYER OF MILWAUKEE FOR THE 21ST CONSECUTIVE YEAR.

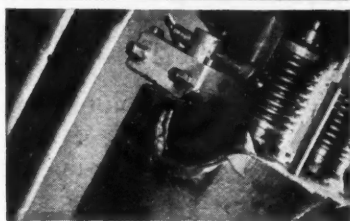
A ROYAL DECREE IN ITALY DEMANDS ALL MOTOR FUEL CONTAIN AT LEAST 30% ALCOHOL.



FOR BACK SEAT DRIVERS. SPEEDOMETER RADIO CLOCK AND ALTIMETER ARE ALL FITTED ON THE BACK SEAT OF THE NEW DUESENBERG.

Do You Know
An "Oddity"?

Correspondence about "Automotive Oddities" is invited. Contributions used will receive editorial mention when practicable. If you are interested in the source of, or the reason for, a particular "Oddity," ask the editorial department of Automotive Industries about it.



NEWS

OF THE INDUSTRY



November Output Down to 68,867

Canadian Figure
Adds Only 1247

WASHINGTON, Dec. 31—The production of motor vehicles in the United States in November totaled 68,867 units as against 80,142 in October, according to reports made to the Bureau of the Census. The November output consisted of 48,185 passenger cars, 19,683 trucks and 999 taxicabs. In the first 11 months of 1931 the production totaled 2,268,195 vehicles, as compared with 3,200,285 in the corresponding period of 1930.

The Canadian output in November sank to 1247 vehicles, consisting of 812 passenger cars and 438 trucks. In the first 11 months of 1931 the Canadian total was 80,189, as compared with 148,570 in the corresponding period of 1930.

Tool Show Date Set

NEW YORK, Dec. 29—At a meeting of the exposition committee of the National Machine Tool Builders' Association, held in Cincinnati on Dec. 18, it was decided finally to hold a National Machine Tool Builders' Exposition in the public auditorium of Cleveland, Sept. 10-17, 1932. The tentative dates, as above, had been set for some time, but formal ratification of the project was not forthcoming until last week's meeting.

Chevrolet Output Up

DETROIT, Dec. 30—H. J. Klingler, vice-president and general sales manager of the Chevrolet Motor Co., at an annual meeting of dealers and salesmen here yesterday stated that December production would substantially exceed an earlier estimate of 37,000 units, and that Chevrolet registrations to date this year are only 5.6 per cent less than they were in 1930.

The meeting at which the announcement was made was one of a series.

WHEN a bandit leaped on the running board of his car Frank G. Kusenback used the squeeze play, ignoring the bandit's gun. He sideswiped a parked car and the bandit's leg was fractured.

The Chilean Minister of the Interior is crying "Get a horse." He has broadcast a circular urging wider use of horses and mules. He reveals that the policy of the exchange control commission virtually prohibits the importation of all classes of automobiles.

All is forgiven now, but only after ———, an attorney for the ——— company, promised to return all photographs and evidence collected at the plant of the ——— company, which were made in building up the case for the ——— company, which is preparing to sue ——— for using special disk wheel machinery. ——— stole into the plant and made photographs of men at work. He escaped the first day, but when he came back with a drawing board and began sketching designs, factory detectives had him arrested. At a hearing he was released when he turned over all his information.

The pyramiding of a fortune started by the savings of a stenographer were revealed when Mrs. Richard Grant Lydy sued her husband for separate maintenance. She says she supplied the cash for purchase of the first vacant lot, and that the parking business now brings in \$100,000 a year.

Morton Tully thought he'd play a joke on a friend. He let the air out of the tires of an auto in front of his home. Somebody else caught him and shot him in the leg. It was the wrong car.

Henry Rigsby, a watchman at the Diamond T Truck Co. plant, shot himself in the leg recently when he tried to chase a dog out of the place.

A \$25,000 damage suit filed in Paris, Mo., will test the legal liability of the back-seat driver. The complainant's car was hit by one driven by a woman and carrying a number of her friends. She was going 50 m.p.h., "at the suggestion of a lady on the back seat," the bill states.

THE
NEWS
TRAILER

G.M. Organizes Company in South

Will Push Multiple
Lines in Wide Area

CHARLOTTE, N. C., Dec. 28—Organization of the S. E. Company by the General Motors Corp. was disclosed in communication received here from R. H. Grant, president.

The company will have its headquarters in Atlanta, Ga., and zone headquarters in Atlanta, Charlotte and Jacksonville. Lee A. Folger of Charlotte was named manager for the Charlotte office. Paul B. Divver, manager of the Buick zone headquarters at Charlotte, was transferred to the new Jacksonville office. J. M. Wilson of Atlanta was named manager of the Atlanta division office. R. L. Myers, an executive of the General Motor Corporation, is the general sales manager of the new company.

The announcement by Mr. Grant to General Motors dealers confirmed a report published by *Automotive Industries* last week. Mr. Grant issued a call (Turn to page 32, please)

McCord to Exchange

CHICAGO, Dec. 29—McCord Radiator & Mfg. Co. has made an offer of its "B" stock in exchange for the preferred debenture and common stocks of McCord Mfg. Co. McCord Radiator has offered three and one-half shares of "B" stock for each share of the manufacturing company's preferred "A" stock, one share of "B" for each debenture share, and one-half share of "B" for each common share up to 50 per cent of the amount held by any stockholder.

Bendix Gets Tubing Order

CHICAGO, Dec. 29—Orders have been received by Bendix Aviation Corp. for 3,000,000 ft. of seamless flexible tubing for 1932 delivery.

Registration of Automobiles in Mexico and Central America

Country	1925	1930	Percentage of Increase	Percentage of American Makes
Passenger Cars				
Mexico	31,579	59,500	88.4	100
Costa Rica	500	1,283	156.6	99
Guatemala	1,210	2,038	68.5	98
Nicaragua	350	950	171.4	99
El Salvador	1,000	1,829	83	100
Panama & Canal Zone ..	3,783	6,336	67.5	100
British Honduras	103	174	70	99
Honduras	330	737	124	99
Total	38,855	72,847	87.5	
Trucks				
Mexico	5,845	16,500	182.3	100
Costa Rica	50	476	852	99
Guatemala	254	755	200	97
Nicaragua	55	200	264	100
El Salvador	60	309	401.5	100
Panama & Canal Zone ..	212	1,196	464	100
British Honduras	29	62	114	100
Honduras	86	289	236	100
Total	6,591	19,787	200	
Buses				
Mexico	400	4,800	1,100	100
Costa Rica	50	105	110	100
Guatemala	15	56	270	100
Nicaragua	1	20	2,000	100
El Salvador	20	110	450	100
Panama & Canal Zone ..	180	486	170	100
British Honduras	2	...	...	100
Honduras	2	81	3,950	100
Total	670	5,658	745	100
Grand Total	46,116	98,292	113	

*Courtesy Automotive Division, Commerce Dept.

Aluminum Men to Confer

CINCINNATI, Dec. 30 — Sales and distribution plans for 1932 will be outlined at a sales conference at the St. Cloud, Minn., plant of Aluminum Industries, Inc., Jan. 7-9. Factory sales executives from the home office at Cincinnati and district managers and sales representatives from all over the United States and Canada will participate in the conference.

Stinson Lets \$2,500,000 in Orders

WAYNE, MICH., Dec. 29 — Material commitments totaling more than \$2,500,000 have been let within the last five days by the Stinson Aircraft Corp., it was announced today.

In making the announcement company officials said that Stinson was preparing for an even bigger year in 1932 than in 1931 when the company sold more than 70 per cent of all the

cabin planes in the United States and more tri-motored planes than all other manufacturers combined.

Revamping of production methods and a general plant expansion, including an investment of many thousand dollars in new tools and precision instruments, will be completed within a few days.

Further expansion is contemplated in erection of new research and experimental laboratories and an improved paint shop.

Capacity production will be started the first of the year with the addition of at least 300 workmen, it was stated.

Silver Fleet in Florida

AKRON, Dec. 28 — The Silver Fleet of cars and trucks operated by the B. F. Goodrich Rubber Co. has gone to Ocala, Florida for the winter. The tire testing caravan will operate day and night over Florida highways, A. J. Hinrichs, superintendent of the fleet, announced.

Hupp Keeps 1931 Lines

Model Designations Are Changed and Prices Are Reduced

DETROIT, Jan. 2 — It has definitely been decided to carry on the present Hupmobile line into 1932, with a change in model designation. Prices, of course, are materially reduced and are as follows:

Model 214—former Model S

	New Price	Old Price	Down
Sedan	\$795	\$995	\$200
2-p. coupe	795	995	200
2-4-p. coupe	795	995	200
Conv. cabriolet	850	1050	200
5-p. phaeton	850	1050	200
2-4-p. roadster	875	1075	200

Model 218—former Model L-8

Sedan	1095	1295	200
2-p. coupe	1095	1295	200
2-4-p. coupe	1095	1295	200
Conv. cabriolet	1150	1350	200
5-p. phaeton	1150	1350	200
2-4-p. roadster	1175	1375	200

Model 221—former C-8

Sedan	1295	1595	300
2-4-p. coupe	1295	1595	300
5-p. town sedan	1265	1705	440
5-p. victoria	1315	1615	300
4-p. coupe	1315	1615	300
7-p. phaeton	1385	1685	300
Conv. cabriolet	none	1595	

Model 225—former H

Sedan	1455	1895	440
2-4-p. coupe	1455	1895	440
5-p. town sedan	1420	2005	585
5-p. victoria	1475	1915	440
4-p. coupe	1475	1915	440
7-p. phaeton	1565	2005	440
Conv. cabriolet	none	1895	

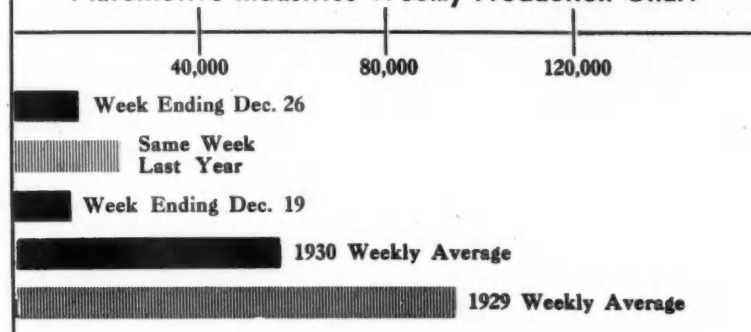
Model 237—former U

7-p. sedan	2095	2295	200
7-p. limousine	2245	2445	200
5-p. victoria	2095	2295	200

Surveying Fuel Sales

WASHINGTON, Dec. 28 — The Bureau of the Census and the Minerals Division of the Bureau of Foreign and Domestic Commerce are conducting a cooperative nation-wide survey on the distribution of gasoline and lubricating oils through filling stations, automobile dealers and garages and accessory dealers. In each instance, the detailed figures will show the number of these different outlets, their sales and sales per capita, in each county of the United States and in towns of over 10,000. In the larger cities, probably of 50,000 and over, the sales through these four major types of establishments will be broken down to indicate the proportion of gasoline and lubricating oils sold by each.

Automotive Industries Weekly Production Chart



Briggs Outstanding Reduced

DETROIT, Dec. 29—Briggs Mfg. Co. has announced that the number of issued and outstanding shares of non-par value stock has been reduced to 1,979,000 shares, on which directors have declared a cash dividend of 25 cents payable Jan. 25 to stock of record Jan. 11.

Introduces New Tractor

CHICAGO, Dec. 28—Minneapolis Moline Power Implement Co. has introduced a universal tractor model. Special concessions are to be made to dealers in merchandising the new model. A new company plan relieves the dealer of financing problems and note collection.

Triplex Considers Sale

CHICAGO, Dec. 28—Stockholders of Triplex Safety Glass Co. will vote Jan. 16 on proposed sale to Libby-Owens-Ford Glass Co. of its entire flat and laminated glass business for which it would receive 29,490 shares of Libby common stock and cash to cover inventory.

L.G.S. on 24 hr. Schedule

INDIANAPOLIS, IND., Dec. 29—The L. G. S. Devices Corp. is now in production on a twenty-four-hour-a-day schedule, using three shifts of workers.

In preparation for this volume of business, the L. G. S. corporation recently installed over \$100,000 worth of automatic machinery, much of which was specially designed for the manufacture of helical springs.

Olds Employment Up

LANSING, Dec. 27—Employment at the Olds Motor Works and Fisher Body Corp. plants here has been increasing steadily this month, D. S. Eddins, vice-president and general manager of the Oldsmobile plants, announced. The high peak was reached this week.

The factory employment at the Olds plant alone exceeded 2000 last week

for the first time this year and 200 more men are being recalled this week, Mr. Eddins said. These figures are exclusive of plant executives, engineering and officer personnel and the Fisher Body plant. The latter is also operating with a large force.

Seiberling Returns to Akron

F. A. Seiberling, president of the Seiberling Rubber Co., has returned to Akron from a business and vacation trip through the West and to Hawaii. Mr. Seiberling, whose company this year dropped out of the original equipment business and showed a half million dollar profit in replacement trade, predicts better business for his company next year.

Burgess Realigns Plant

MADISON, WIS., Dec. 28—Due to the rapid development of its acoustical products business since its entrance into this field a little more than two years ago the Burgess Battery Co. is effecting a realignment of production. After Jan. 1 the battery division will be consolidated at the branch plant in Freeport, Ill., and the main works at Madison will concentrate on the acoustical products. Originally both plants were exclusively devoted to the manufacture of dry batteries, and when the acoustical line was adopted some of the work was done in both plants. The more important products of the acoustical division are exhaust mufflers and intake silencers for automobiles, gas engines and air compressors, acoustical window ventilators, typewriter pads, etc.

Under the new alignment the battery and acoustical products businesses will be conducted as separate divisions, distinct not only as to plants and production organizations, but as to engineering, purchasing and sales departments.

Plymouth Using Helical Gear

DETROIT, Dec. 28—Plymouth cars are now equipped with helical-gear, silent-second-speed transmissions, it has been learned.

Kissel Plant To be Used

Bondholders' Committee Now Controls Destiny of Company

HARTFORD, WIS., Dec. 28—Formation of the Kissel Co., a new organization to succeed the Kissel Motor Car Co., in receivers' hands, is announced. The new concern will be controlled by the bondholders' committee, and George A. Kissel, president, and William L. Kissel, secretary and treasurer of the old company, will be actively identified with it. The Kissel factory will be continued in operation, and such space as its present needs do not require will be leased to other concerns, and a number of new companies which the Kissel Co. will develop. Already space has been leased to the Taxicab Co. of America, a Chicago interest, and a part of the plant is used by the Fuller & Johnson Co., Madison, Wis., which acquired the parts and service departments in September and has agreed to maintain complete parts and repair service to Kissel owners for at least two years.

The announcement does not make reference to the exact nature of the Kissel Co.'s manufacturing plans, if any, but there is small likelihood that the manufacture of passenger cars, motor trucks, funeral coaches, ambulances, etc., will be resumed.

The Kissel Motor Car Co. was organized in 1906 to manufacture motor cars. It was the outgrowth of a gasoline engine and implement business established in Hartford several years earlier. The receivership was brought about in September, 1930, in a friendly action to foreclose on a bond issue of \$750,000 made April 1, 1922, the unpaid balance of which is \$523,100. George A. Kissel and Thomas L. Davidson have since administered affairs as co-receivers.

Another "Miss England"

LONDON, Dec. 19 (by mail)—It is announced today that Lord Wakefield has ordered a new speed boat to be known as "Miss England III," which Kaye Don will pilot next year in attempts to improve still further upon the world's speed record on water. Kaye Don will also compete in the races for the D'Annunzio trophy on Lake Garda in Italy and the Harmsworth trophy in the U. S. A.

The new boat will be designed and built by Thornycrofts at their riverside plant on the Thames, near London. It will be fitted with two 1931 Schneider seaplane type Rolls-Royce engines, the makers of which will cooperate with Thornycrofts in the design of the hull. Exhaustive tank tests are to be undertaken as a preliminary.

Diamond Refines Successful Model

One and a Half Tonner Will Head Company's 1932 Lines

An improved edition of Diamond T's 1½-ton Model 216 is being offered for 1932. This new model, featured by fourteen improvements and refinements, lists at \$795.

Downdraft carburetion and control in the intake manifold are among the notable improvements in the engine, a rubber mounted Diamond T-Hercules 3½ x 4¼ in. six, which displaces 228 cu. in. and develops 56 hp. at 2500 r.p.m. Pistons are light weight cast iron.

Changes from the 216 originally introduced include a Clark axle having greater capacity, larger wheel bearings and incorporating a splined pinion shaft carried on three roller bearings; springs of greater capacity and 4-leaf helper springs as standard equipment, and a Borg & Beck 10-in. clutch with flexible plate mounting,

which acts as a vibration dampener. Riding comfort has been increased by the adoption of hydraulic shock absorbers. Gasoline and hydraulic fluid lines have been simplified and a new automatic supply tank for the braking system is now built integral with the master cylinder. A convenient opening under the hood makes replenishment of the system an easy task.

Four-wheel Lockheed brakes with 15-in. cast alloy iron drums and molded lining do the stopping, and an external band brake on the end of the transmission does the parking. Ease in handling and front-end strength were particular objectives of the engineers when they put extra large king pins in the front axle, employed Ross cam and lever steering and hung extra long front springs in compression type rubber bushings in the rear and shackles in front.

By careful design strength without excessive weight was achieved in the tapered pressed steel frame. Special cross members of the alligator jaw type are used. A new type front cross member and engine support, designed by A. O. Smith Corp., provides stiffness at this point.

Steel Mills Expect Rise

Automotive Orders May Bolster Output to 40 Per Cent

NEW YORK, Dec. 31—Mahoning and Shenango Valley rolling mills will start the new year with a fair volume of automotive orders on their books. Motor truck manufacturers in quite a few instances have asked for quick shipment of steel needed for early January operations. While one of the large manufacturers of low-priced passenger cars who is reported to be engaged in considering further alteration of new models asked some of the sheet and strip mills to postpone shipments that were to have been made in January until March, others have come through with releases for sizable tonnages. At the start of 1932 sheet and strip mills are in a position to operate at around 30 per cent of capacity and the general expectation is that the next 60 days will permit of a stepping up to 40 per cent. At that, not so much in the way of a broadening of demand is looked for during the year's first as during its second quarter. In this expectation automotive releases are looked for to furnish principal support.

Sellers look upon the lower prices that have recently marked some transactions, especially so in strip steel, as concessions to individual buyers rather than as out-and-out market declines, and as strictly temporary. They expect the market to stiffen as more business comes out. For the present, however, hot-rolled strip is quotable at 1.50@1.60 cents, and cold-rolled at 2 cents, Pittsburgh. Somewhat more inquiry has developed for automotive alloy steels and quite a little business is in process of negotiation.

Pig Iron—Some extraordinarily low prices have come out in Middle West markets, lake furnaces quoting as low as \$15 and \$15.50, furnace, on No. 2 foundry and malleable in competitive territory. Even so, automotive foundries are not taking on more iron than needed for immediate melting, as every cut in price causes doubt as to whether or not the bottom has been reached. A Middle West market authority says that return to anything like normal demand would eat up present stocks in about two months.

Aluminum—Quotably unchanged and quiet.

Copper—Marking time at unchanged quotations.

Tin—Dull. Straits tin was quoted at 21.90 cents at the beginning of the week.

Lead—Storage battery manufacturers have been holding off until after the turn of the year to take on more metal. Unchanged.

Zinc—Quiet and unchanged.

Lansing Plans Show

LANSING, Dec. 28—Lansing's annual automobile show, an event sponsored by the automobile dealers' association, will be held for one week starting Monday, Jan. 11.

Citroen and the Rising Generation



M. Andre Citroen has always kept in mind the fact that the child of today is the motorist of tomorrow. In his efforts to interest children from the earliest age in motoring his company produces toy cars ranging from 3 in. long up to the electrically driven model shown in the accompanying illustration, in which the child can drive himself. The lucky possessor of one of these super toys is not likely ever to forget the name of Citroen as long as he lives.

Specifications of what is known as the New Electric Citroennette are as follows: Motor driven by two auto-block "Din-in" groups, 12 volts (capacity:

105 amp. per hr.) Speed: 10 km. per hr.; 50 km. without reloading. Forward speed and reverse. Dead point. Acceleration by rheostat and pedal. Energetic hand brake on the motor. Dial board varnished, with voltmeter, klaxon, electric switch operating two front headlights and one rear lantern. Five complete wheels (one spare wheel included). Nickel-plated wheel disks. Michelin Junior tires. Tool kit. Assorted shades. Painted fillets on the coach body and the wheels. Trimmings to match. Price, \$37.10 (\$187.50 at par). The purely toy models range from 1s 9d to 16s (40 cents to \$4).

Chevrolet Launches Big Sales Push

Executives Plan Series of Meetings For All Merchandisers

DETROIT, Jan. 2—The Chevrolet Motor Co. next week will launch a nationwide series of sales meetings which will bring together during the next two months 50,000 salesmen, dealers, associated bankers, zone and region officials, and central office executives.

The purpose of this year's assembly is to enlist the aid of dealers in better management for 1932, and to suggest to salesmen ways of presenting the new Chevrolet Six to the public. Merchandising methods will be explained.

Starting Jan. 5, four groups of officials from the home office, each accompanied by a carload of theatrical equipment, stage hands, and electricians, will hold 50 meetings in as many key cities.

H. J. Klingler, vice-president and general sales manager, will supervise the meetings. Assistant sales executives will have charge of the four groups. These executives are D. E. Ralston, assistant general sales manager; W. E. Holler, assistant general sales manager; M. D. Douglas, general parts and service manager, and W. G. Lewellen, sales promotion manager.

The meeting in each city will last two days, the first day's program will be staged in a prominent theater or hall. The morning session will be for dealers and associated bankers. The topic for discussion will be better management and its relation to sales and profits.

At noon, dealers and salesmen will lunch together, at which time officers of the 100-Car Club, comprised of the company's leading salesmen, will be installed. The 50-Car Club, a new organization of similar nature, will be inaugurated at this time.

The afternoon session will be devoted primarily to the salesmen. With sales officials in the role of actors, the selling of the new Chevrolet will be dramatized by playlets. The movie-tone also will be used extensively in illustrating the best ways of making a presentation.

In the evening a special banquet will be held in honor of the 100-Car Club salesmen. On the following day, open house will be observed to give dealers an opportunity to discuss their individual problems with various sales executives.

Mr. Klingler, in addition to the Detroit meeting which was held on Dec. 28-29 before the road tour began, will attend meetings in New York, Cincinnati, Atlanta, St. Louis, Dallas, Boston, Cleveland, Pittsburgh, Harrisburg, Chicago, Knoxville and Kansas City.

Mr. Ralston will direct meetings in the following 13 cities: Chicago, Milwaukee, Minneapolis, Fargo, Seattle, Portland, Ore., San Francisco, Los Angeles, Salt

Lake City, Denver, Omaha, Des Moines and Moline.

Mr. Holler, who conducted the Detroit gathering, will be in charge of the sessions in the following 10 cities: New York, Boston, Syracuse, Buffalo, Cleveland, Pittsburgh, Harrisburg, Washington and Philadelphia.

Mr. Lewellen will swing through 11 southern cities as follows: Fort Wayne, Indianapolis, Louisville, Cincinnati, Charleston, Charlotte, Columbia, Jacksonville, Birmingham, Atlanta and Knoxville.

Mr. Douglas will hold meetings in the following 13 cities: Decatur, St. Louis, Hot Springs, Memphis, New Orleans, Houston, Dallas, San Antonio, El Paso, Amarillo, Oklahoma City, Wichita and Kansas City.

Builds Large Power Unit

MILWAUKEE, Dec. 28—One of the largest portable powerplants of the internal combustion type that has ever been built is about to be shipped by the LeRoi Co., West Allis, suburb of Milwaukee, to the city of Los Angeles water department for use in testing the output of newly drilled water wells. The plant, weighing 11,000 lb., is powered with an 8-cyl. V-type engine. It is a two frequency unit, generating either a 50 or a 60-cycle current at 460 volts. The purpose of the plant is to save the expense of building transmission lines to newly drilled wells that may not come up to expectations or requirements. It is a new product for the LeRoi Co., which sees possibilities that will make it profitable to bring it out as a regular line. Among these is a power source for moving picture concerns "out on location." The plant cost about \$9,000.

Kearney Sales Better

MILWAUKEE, Dec. 28—Decided improvement in orders and betterment of sentiment in the machine tool trade is reported by E. J. Kearney of the Kearney & Trecker Corp., maker of milling machines. From July to September it was difficult to interest manufacturers in new equipment, he said, but in the last six to eight weeks firms that previously had shown no interest are now in the market. Production has gained, not from large individual sales, but from purchases by widely diversified sources, with automobile manufacturers well represented.

Searle Leaves Allis

Clarence E. Searle, general representative of the Allis-Chalmers Mfg. Co., Milwaukee, has resigned, effective Jan. 31, to become associated with a large Eastern interest, the name of which is withheld for the present. Mr. Searle entered the sales department of the Milwaukee company in 1907 and for the past 18 years has directed its entire sales activities. He will be succeeded by L. W. Grothaus, at present assistant manager of the electrical department.

Young Radiator Co., Racine, Wis., announces that it will exhibit at the American Road Builders Show, to be held in Detroit, Jan. 11 to 15. Among the items to be exhibited will be new developments in heating cores both for convection heating and unit-heating service.

Gasoline Use in Canada Off

Curtailed Circulation of Cars in Western Provinces Blamed

OTTAWA, Dec. 28—Average gasoline consumption per registered motor vehicle in Canada during 1930 was 387 gal., according to figures compiled by the Dominion Bureau of Statistics. This figure does not make allowance for the gasoline purchased by U. S. tourists, however, which would reduce the average slightly.

Total consumption of gasoline by motor vehicles in Canada during the year amounted to 479,554,392 gal., this being approximately 3,000,000 gal. less than in the previous year, or a decrease of 0.7 per cent. This decrease was due to the curtailed use of automobiles in the western provinces, especially Saskatchewan, where consumption per registered motor vehicle dropped 32 per cent, and in Alberta where the decrease was 24 per cent.

Ontario consumption, for motor vehicles alone, increased nearly 10,000,000 gal., rising to 239,058,108 gal., the average per registered vehicle being 423 gal. in the year. In Quebec, where the average per vehicle was highest, being 465 gal., consumption was over 12,500,000 gal. greater than in 1929, totaling 83,231,268 gal. The biggest per cent gain in total consumption, however, was made in New Brunswick, where the total of 13,982,400 gal. used by motor vehicles was 40 per cent above the previous year's figure.

Hudson-Essex Enters Canada with Plant

TILBURY, ONT., Dec. 29—Formation of Hudson-Essex of Canada, Ltd., to manufacture Hudson and Essex cars for the Canadian market, was announced here today. The plant, located in this town, will be operated by Canadian labor, and production activities are already under way.

In making the announcement, A. E. Barit, who will be president of the new organization, pointed out that Hudson-Essex has nearly 600 sales outlets in the Dominion and that registration of Hudson and Essex cars now constitute more than 15 per cent of total registrations in their price group.

Officers of Hudson-Essex limited, in addition to Mr. Barit as president and William J. McAneeny, president of the parent company, as chairman of the board, will be Chester G. Abbott, vice-president, and Max F. Woltering, vice-president. The secretary and treasurer will be A. Hood. Directors, in addition to the above, will include Roy D. Chapin, chairman of the board of the parent company, and C. D. Sterling.

Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for Automotive Industries

NEW YORK, Dec. 30—At the turn of the year general business is decidedly below that a year ago. General retail and wholesale trade are unsatisfactory, and the heavy industries are dull. With a few exceptions here and there, collections are slow. The Guaranty Trust Co.'s preliminary index of business activity for November is 57.7, as against 60.9 for October and 73.5 a year ago. The Guaranty Trust Co.'s index of wholesale commodity prices for December is 43.1, as against 46.5 for November and 56.6 a year ago.

CAR LOADINGS

Railway freight loadings during the week ended Dec. 12 totaled 613,534 cars, which marks a decrease of 22,832 cars below those during the preceding week, a decrease of 130,819 cars below those a year ago, and a decrease of 309,327 cars below those two years ago.

ELECTRICITY OUTPUT

The production of electricity during the week ended Dec. 19 amounted to 1,675,653,000 kw. hr., which marks a decrease of 5.3 per cent below that a year ago.

WHEAT ACREAGE

The acreage planted to winter wheat this fall for next year's harvest was 38,682,000, according to the Department of Agriculture, which marks a decrease of 10.4 per cent below that planted in the fall of 1930.

COTTON SPINNING

Cotton spinning spindles in place in the United States at the end of November numbered 32,366,444, of which 24,860,684 were operated some time during the month, as against 25,188,112 during October and 25,796,748 a year ago.

CRUDE OIL OUTPUT

Average daily crude oil production for the week ended Dec. 19 amounted to 2,430,300 bbl., as against 2,452,650 bbl. for the preceding week and 2,202,200 bbl. a year ago.

FISHER'S INDEX

Professor Fisher's index of wholesale commodity prices during the week ended Dec. 26 stood at 66.7, as against 67.0 the week before and 67.1 two weeks before.

STOCK MARKET

The sharp rise on the stock market in the preceding week was not continued last week, and the volume of trading was at a much lower level. A few issues suffered sharp losses for the week, but the declines in most issues was moderate.

RESERVE STATEMENT

The consolidated statement of the Federal Reserve banks for the week ended Dec. 23 showed an increase of \$213,000,000 in holdings of discounted bills, while there were decreases of \$50,000,000 in holdings of bills bought in the open market and a decrease of \$148,000,000 in holdings of government securities. The reserve ratio on Dec. 23 was 64.4 per cent, as against 65.0 per cent a week earlier and 66.1 per cent two weeks earlier.

Trader Handbook Out

NEW YORK, Dec. 28—The 1932 edition of "The 'Trader' Handbook, Diary and Garage Reference Book," published by the Trader Publishing Co., London, contains a number of important revisions when compared with the 1931 edition.

Specifications of the 1932 models of automobiles, motorcycles and bicycles manufactured and sold in the British market are included together with the standard features, such as Motor Vehicle Laws, trade listings and the Road Traffic Act of 1930 are also included.

A new feature is a complete guide to manufacturers and supplies of shop equipment on the British market.

Adopts New Engine

MILWAUKEE, Dec. 28—A new type of 4-cycle gasoline engine rating one-half horsepower, developed by the Briggs & Stratton Corp. of this city, has been adopted as standard equipment for the Kenmore line of power washing machines by Sears, Roebuck & Co., it is announced.

Firestone Reports Profit

NEW YORK, Dec. 29—Firestone Tire & Rubber Co. and subsidiaries report net profit for the year ended Oct. 31 of \$6,028,631. This is equivalent, after preferred dividend, to \$1.25 a share on common stock. Sales for the year totaled \$113,797,282, as compared with \$120,015,663 for the previous year.

Muehl Succeeds Schwab

E. L. Muehl, of Chicago, has been appointed manager of the Ford Motor Co. branch plant in Louisville, Ky., succeeding P. W. Schwab. Mr. Muehl has been affiliated with the Ford organization for many years.

Crockett Selling Equipment

C. B. Crockett, former executive secretary of the Industrial Truck Association, is now a member of the firm of Crockett and Smith, New York, which will act as eastern general sales agent for the Automatic Transportation Co., Inc.

Notes

Cities of the United States will compete for the title of "America's Safest City," according to plans now being matured by the National Safety Council. The only obligation assumed by a city entering the contest is to report accidents and mortality figures regularly. All cities will be divided into groups according to population. Local initiative will be the sole guide in carrying out a safety program designed to help the city win the contest.

Aircraft and aircraft engine exports for the month of September, 1931, have been reported by the Department of Commerce. Eleven airplanes, valued at \$165,837, were exported during the month. Engine exports numbered 28, valued at \$98,559. Exports of parts and accessories were valued at \$88,589. Shipments to Hawaii had an aggregate value of \$1,334, and those to Porto Rico a value of \$9,694.

Equipment Sales Rise in November

Factory Purchases Responsible for Entire Increase

NEW YORK, Dec. 28—Sales of accessories and equipment during November showed an increase over the previous month, according to the index figures of the Motor and Equipment Association. The grand index for the month was 59, as compared with 54 for October and with 72 for November a year ago.

Original equipment sales during the month were responsible for the entire increase, showing an index of 48, as compared with 37 for the previous month and with 62 for November, 1930. Replacement parts sales during the month set an index of 102, as compared with 129 for the previous month and 127 for November of last year. The index for accessories was 73, as compared with 80 for the previous month and 63 for the corresponding month of last year. Shop equipment sales set an index of 60, as compared with 69 in October and with 80 for November of last year.

Merchants Plan Show Dinner

NEW YORK, Dec. 28—The Automobile Merchants' Association of New York, Inc., will hold a preshow dinner at the Hotel Commodore on Friday evening, Jan. 8. R. H. Grant, vice-president of General Motors Corp. and chairman of the Sales Managers Committee of the National Automobile Chamber of Commerce, will be the guest speaker, to be followed by "Senator" Ford.

"Micheline" Arrives in U.S.

NEW YORK, Dec. 28—The Micheline, pneumatic tired motor driven combination railroad coach, developed by the Michelin Tire Co. in France, and previously described in *Automotive Industries*, came to this country last week for demonstration and possible commercial development. It was consigned to Messrs. Heemsoth Basse & Co., Michelin's agents in New York.

Auburn Lists More Shares

NEW YORK, Dec. 28—Auburn Automobile Co. has secured additional listing on the New York Stock Exchange of 4073 shares for the purpose of paying stock dividend on Jan. 2.

Studebaker Employs 9000

CHICAGO, Dec. 28—Studebaker Corp. is almost daily adding to its working forces and now has 9000 men employed nine hours a day in the South Bend plant.

S.A.E. Announces Tentative Program For Annual January Meeting in Detroit

NEW YORK, Dec. 28—An announcement of the tentative program for the annual meeting of the Society of Automotive Engineers was made today from the New York headquarters of the organization. The meeting is to be held in Detroit, at the Book-Cadillac Hotel, Jan. 25-29. The tentative program follows:

MONDAY, JAN. 25

10 a.m. **Standards Session**
Reports of Divisions of the Standards Committee will be presented and acted upon as usual.

2 p.m. **Front Wheel Alignment**
Geometry of the Front End.

Speaker to be announced later.

Front End Engineering in Relation to the Service Field Situation.

C. P. Grimes, Grimes Brake Engineering Service.

Analysis of the Work and Conclusions of the Front Wheel Alignment Research Subcommittee.

Prof. J. M. Nickelsen, University of Michigan.

8 p.m. **Business Session**
Committee Reports.
Standards Committee Report.
Nomination and Election of Members-at-Large of Annual Nominating Committee.
Announcement of Election of Officers for 1932.

8.15 p.m. **Student Session**
Theory of Internal Combustion Engines and Fuels.
H. L. Horning, Waukesha Motor Co. Research Instruments.
Demonstration by T. O. Richards, General Motors Research Laboratories.
Session sponsored by Detroit Student Activity. R. N. Janeway, Chairman.

TUESDAY, JAN. 26

10 a.m. **Bearings Session**
A Possible Criterion for Bearing Temperature Stresses.

D. P. Barnard, Standard Oil Co. of Indiana.

The Manufacturer's Viewpoint on Engine Bearings.

D. E. Anderson, Bohn Aluminum & Brass Corp.

The Car Designer's Viewpoint on Engine Bearings.

Alex Taub, Chevrolet Motor Co.

2 p.m. **Body Session**
Noise and Heat Control in the Automobile Body.
C. L. Humphrey, Chrysler Corp.
Safety Factors in Automobile Body Design.

Maxwell Halsey, National Bureau of Casualty and Surety Underwriters.

8 p.m. **Chassis Session**
Streamlining and Rear-Engine Mounting.

Sir Dennistoun Burney, London, England.

Riding Qualities Research.

F. A. Moss, George Washington University.

A New Type of Engine Mounting.

N. F. Hadley, R. K. Lee and R. N. Janeway, Chrysler Corp.

WEDNESDAY, JAN. 27

10 a.m. **Transportation and Maintenance**
When to Reuse and When to Junk a Used Part.

Joseph Geschelin, Automotive Industries.

2 p.m. **Motorcoaches and Motor Trucks**
Powerplants and Their Relation to the Military Motor Transport of the Army.

Col. E. S. Stayer, United States Army.
The Super-Range V-12 Engine for Modern Transportation.

Hubert Walker, American LaFrance & Foamite Corp.

8 p.m. **Aircraft Session**
Speeding Up the Army in the Air.

Brig. Gen. H. C. Pratt, Chief of Material Division, United States Army Air Corps, Wright Field.

THURSDAY, JAN. 28

10 a.m. **Diesel Session**
Compression Ignition Characteristics of Injection Engine Fuels.

A. W. Pope, Jr., and J. A. Murdock, Waukesha Motor Co.

Air Capacity and Speed of Diesel Engines as a Basis for Appraising Their Automotive Characteristics.

Julius Kuttner, New York City.

2 p.m. **Production Session**
Responsibility of Manufacturing Management.

Gordon Lefebvre, Consulting Engineer, Detroit.

6.30 p.m. **Dinner**
Detroit Section acting as host to the National Society.

Teamwork in Research.
Maurice Holland, National Research Council.

Tickets should be obtained in advance at Detroit Section Office.

Application blank is enclosed.

Price \$2.50.

FRIDAY, JAN. 29

10 a.m. **Research Session**
Fuel System Design and Vapor Lock.
O. C. Bridgeman, Bureau of Standards.

The Problem of Gum in Gasoline.

E. W. Aldrich, Bureau of Standards.
The Fundamentals of Automotive Lubrication.

H. C. Dickinson and O. C. Bridgeman, Bureau of Standards.

AFTERNOON

Committee Meetings.

Graham Expects Increase

DETROIT, Dec. 28—C. M. Dotterrer, supervisor of personnel, Graham-Paige Motors Corp., has announced that an increase in employment is expected during January. At present there are about 1100 men employed in the Warren Ave. factory and about 450 in the body plant at Wayne.

Motor Wheel Opens Detroit Office

DETROIT, Dec. 28—J. B. Siegfried, vice-president, Motor Wheel Corp., Lansing, Mich., has announced the opening of a Detroit office. The new office, located at 2820 E. Grand Blvd., is in charge of Claude Platt.

Sloan Cites Fundamentals

NEW YORK, Jan. 1—Alfred P. Sloan, Jr., president of General Motors Corp., in his annual New Year's statement, says:

"To visualize the trends of any new year is difficult, even under ordinary circumstances. With all the problems that exist today, with their dominating influence on our economic situation, any expression of opinion can have no basis of fact.

"It seems to me, however, that we are well justified in casting aside these problems, important as they are and controlling, as they undoubtedly do, our immediate future, and in relying upon two far more fundamental facts upon which the foundation of industry is built, viz., the desire to possess and the willingness to work to possess. The mere fact that the economic machinery we are using to capitalize these fundamentals is more or less out of order, is inconsequential. In due course it will be repaired and thereby strengthened. It seems to me that those thoughts, elementary as they are, should provide the strongest basis of confidence for the future."

P. & W. Shifts Department

NEW YORK, Dec. 28—Pratt & Whitney Aircraft Co., a subsidiary of United Aircraft & Transportation Co., has transferred to its plant the aircraft gear department of Pratt & Whitney Tool Co., thus completing arrangements for manufacturing its own gears.

Company officials state that operating economies will result from the new hook-up which will eliminate the extra handling necessary when the gears were manufactured by outside companies.

Peerless Reports Loss

NEW YORK, Dec. 28—Peerless Motor Car Co. reports net loss for the year ended Sept. 30 of \$712,744. This compares with a profit for the preceding year of \$73,237 or 17 cents a share on the capital stock.

This company has received authorization by the New York Stock Exchange for changing the par value of its stock from \$10 per share to \$3 per share, and has received listing of 426,739 shares.

N.S.P.A. Names Schlieder

Appointment of Verne W. Schlieder as field secretary of the National Standard Parts Association is announced by E. P. Chalfant, executive vice-president. Mr. Schlieder will assist A. R. Sandt, director of marketing research.

Schlieder is a veteran in the automotive industry, having been with the E. R. Thomas Motor Car Co. as early as 1910 and later with the Schlieder Mfg. Co. of which he was vice-president and treasurer.

Radio Advertising Holds Up Well

National Magazine Space Shows 16.9 Per Cent Drop in '31

NEW YORK, Jan. 2—Expenditures by the automotive industry for advertising in national magazines during 1931 amounted to \$17,648,165, 16.9 per cent less than the total of \$21,234,014 spent in 1930.

In national farm magazines the drop was 23.4 per cent from \$1,991,204 to \$1,535,065, according to the business survey department of Dorrance, Sullivan & Co., New York advertising agents. In December the total for national magazines was \$942,163 and for farm magazines was \$45,960, representing decreases of 37.1 per cent and 36.7 per cent from last year's figures of \$1,497,266 and \$72,586. The total in 1931 for the two was \$988,123, a drop of 37 per cent. Of the total for national magazines, 55.5 per cent was spent in December for passenger cars and trucks, 3.5 per cent was spent for tires and tubes and 41 per cent was spent for accessories.

In contrast with the advertising in magazines, radio broadcast advertising over national networks by the automotive industry has held up well. The figure for November was \$171,763, 51.5 per cent ahead of the amount spent in November a year ago, and the total for eleven months was \$1,149,427, only 5.4 per cent behind the expenditure of \$1,215,463 for the first 11 months of 1930. The figure for national magazines, farm magazines and radio was \$1,560,662 in November, a decrease of 11.6 per cent from the amount of \$1,764,425 registered a year ago. The 11-month total for these three media was \$19,344,534, 15.4 per cent less than the \$22,870,829 expended during the first 11 months of 1930.

Buick Makes Churchill Vice-President of Sales

E. T. Strong, president and general manager of the Buick Motor Co., announces the promotion of C. W. Churchill to vice-president in charge of sales and George H. Wallace to general sales manager. Mr. Strong also announced that Norbert H. Fell, assistant to general manager, will be in charge of personnel with F. W. Boswell as welfare director. All the appointments are effective Jan. 1.

Mr. Churchill has been general sales manager of Buick since December, 1926. He was formerly general manager of the Winton Automobile Co. before going to Buick in 1921.

Mr. Wallace joined Buick on Jan. 1, 1929, after being with the Chevrolet Motor Co. six years. In May of the same year he was promoted to the

position of assistant sales manager in charge of special sales work, which office he has held since that time.

Mr. Fell went to Buick in December, 1925, as assistant secretary to the late Harry H. Bassett, then Buick president. Shortly afterward he became secretary to the president, and a year and a half ago was made assistant to the general manager.

Mr. Boswell joined Buick in 1919 after three years as managing secretary of the Flint Vehicle Factories Mutual Benefit Association, an organization which later merged with the Industrial Mutual Association.

Miles Plant Burns

STANWOOD, IOWA, Dec. 28—Plant of the Miles Mfg. Co., makers of clutch plates and other automobile accessories, was destroyed by fire the night of Dec. 21 with loss of \$12,000. The plant was unique in that, although owned and operated by a farm family, it had worldwide distribution of its products. Sparks from a hot-box on one of the lathes caused the fire. Insurance practically covered the loss.

LaPierre Succeeds Dreiske

Bruce LaPierre has been appointed manager of the Chicago branch by Rolls-Royce of America, Inc. He succeeds Victor C. P. Dreiske, resigned.

Sterling Personnel Changed

Official personnel of the Sterling Motor Truck Co. has undergone a reorganization by reason of the exercise of the rights of the holders of convertible preferred stock to elect a majority of the board of directors after the passing of four consecutive quarterly dividends. As the result, Ernst M. Sternberg has been elected president to succeed R. G. Hayssen, resigned, who remains a director. Mr. Sternberg has not been active in the company's affairs for two years, although a member of the board. William G. Sternberg and Henry C. Keenan have been elected vice-presidents. Oscar Held was reelected treasurer and also made secretary to succeed Carl G. Hayssen. The company's sales for the year ended Oct. 31, 1931 were \$5,166,000, compared with \$7,961,000 in the previous year. Net loss this year was \$902,800, against \$385,500 last year. It is pointed out that production and sales during the last three years reveal Sterling in a better position than the motor truck industry at large. Furthermore, steady progress has been made in reducing inventories and manufacturing and sales costs, and the concern is regarded as in good position to take advantage of any improvement in business generally.

G. M. Organizes Company in South

(Continued from page 25)

for General Motors dealers in Pontiac, Oakland, Oldsmobile, Cadillac, LaSalle, and Buick lines to meet Jan. 6 in Atlanta when announcement of the new organization's policies will be made.

Operations of the new company will extend throughout the southeastern states, as indicated by the abbreviation in the company's name. The organization was perfected as an economy and efficiency measure, whereby selling activities for the several lines will be centralized instead of, as formerly, each line was sold by representatives of separate zone headquarters of each of the manufacturing companies, according to information assembled here. The Buick Motor Company's zone headquarters here will be abolished, and its activities transferred to the new company's headquarters here.

The volume of automotive wholesale business for Atlanta, Charlotte and Jacksonville will be expanded greatly through the new setup, the reports from authoritative sources said. Formal announcement concerning numerous phases of the plans and policies will be withheld until the meeting in Atlanta Jan. 6, but the correspondent at Charlotte of *Automotive Industries* assembled information through communications with New York, Detroit, Flint, Atlanta and

other offices by which what was regarded as a complete picture of the new activity was obtained.

General Motors officials said this arrangement will practically double the volume of automotive wholesale trade for Charlotte alone. Oakland-Pontiac regional headquarters in Atlanta were closed, and the affairs divided between the three offices of the sales company. Cadillac-LaSalle wholesale business, formerly handled with southeastern dealers direct from Detroit is being distributed according to territory among the new offices.

Retail dealer organizations will not be affected except favorably by the new policy, it was explained. In each divisional headquarters the sales company will store stocks of cars from which dealers may obtain supplementary stocks with a minimum of delay. Regular stocks of dealers will be shipped direct from factories, at least for the present. One of the major benefits of this plan to the dealers is that it should permit them to operate more economically through smaller investments in stocks of new cars, because replacements may be obtained practically within a day from the divisional stocks.

Involved also in the policy of the new company are phases intended to increase banker confidence and co-operation, but these details are being guarded for the present.

Americans Absent From Brussels Show

U. S. Manufacturers Protest Against Belgian Advertising

BRUSSELS, Dec. 14 (by mail)—For the first time in a number of years American firms were in a decided minority at the annual Brussels automobile show, opened this week by Burgomestre Max. It was as a protest against the advertising campaign directed against foreign cars that practically all American firms decided not to take part in this year's show. Ford and Lincoln rented booths, while Studebaker was represented through the Brussels dealer and showed the Rôckne for the first time in Europe. All the others held private displays in their showrooms.

French firms were the most numerous, followed by Germans, Italians and English. There were only three Belgian firms in the passenger car division and four in the truck section. Owing to the withdrawal of the Americans, the hall usually devoted to trucks could not be filled and was taken over by Citroen for a private show comprising 150 automobiles of all types, together with such attractions as movies, concerts, bar, and African and Asiatic displays. The show revealed little that had not previously been on display in Paris or London.

Durant to Be at Show

LANSING, Dec. 27—Durant Motors will be represented at the New York automobile show. Although the company has encountered considerable financial difficulty during 1931, new models will be on display at the national show, officials at the plant said.

The Durant company is employing but few persons, but it is understood that William C. Durant, founder and president of the company, has secured the necessary financial backing in the East.

+ + CALENDAR + + OF COMING EVENTS

SHOWS

National Automobile, New York	Jan. 9-16
San Francisco, Automobile	Jan. 9-16
Lansing, Mich., Automobile	Jan. 11-16
Flint, Mich., Automobile	Jan. 13-16
Newark, N. J., Automobile	Jan. 16-23
Omaha, Neb., Automobile	Jan. 16-23
Toledo, Ohio, Automobile	Jan. 16-22
Cincinnati, Automobile	Jan. 17-23
Milwaukee, Wis., Automobile	Jan. 17-23
Philadelphia, Automobile	Jan. 18-23
Louisville, Ky., Automobile	Jan. 18-23
Columbus, Ohio, Automobile	Jan. 23-28
Boston, Mass., Automobile	Jan. 23-30
Minneapolis, Minn., Automobile	Jan. 23-30
Hartford, Conn., Automobile	Jan. 23-30
Detroit, Automobile	Jan. 23-30
Montreal, Automobile	Jan. 23-30
Baltimore, Automobile	Jan. 23-30
Pittsburgh, Pa., Automobile	Jan. 23-30
Portland, Ore., Automobile	Jan. 23-30
Springfield, Mass., Automobile	Jan. 25-30
Harrisburg, Pa., Automobile	Jan. 25-30
Seattle, Wash., Automobile	Jan. 25-30
St. Petersburg, Fla., Automobile	Jan. 27-29
National Automobile, Chicago	Jan. 30-Feb. 6
Salon, Chicago	Jan. 30-Feb. 6
Washington, D. C., Automobile	Jan. 30-Feb. 6
Cleveland, Automobile	Jan. 30-Feb. 6
Springfield, Ill., Automobile	Feb. 4-6
Plainfield, N. J., Automobile	Feb. 6-13
St. Paul, Minn., Automobile	Feb. 6-13
St. Louis, Automobile	Feb. 7-13
Denver, Colo., Automobile	Feb. 8-13
Indianapolis, Ind., Automobile	Feb. 13-19
Salon, Los Angeles, Calif.	Feb. 13-20
Kansas City, Automobile	Feb. 13-20
Mankato, Minn., Automobile	Feb. 17-20
Peoria, Ill., Automobile	Feb. 17-21
Holyoke, Mass., Automobile	Feb. 18-22
Des Moines, Iowa, Automobile	Feb. 21-26
Wichita, Kan., Tractor and Power Equipment	Feb. 23-26
Salon, San Francisco, Calif.	Feb. 27-Mar. 5
Albany, N. Y., Automobile	Feb. 27-Mar. 5
Berne, Switzerland, Automobile	Mar. 11-20
National Aircraft, Detroit, Mich.	Apr. 2-10

CONVENTIONS

American Roadbuilders Association, Detroit, Mich.	Jan. 11-14, 1932
S.A.E. Annual Dinner, New York City	Jan. 14
S.A.E. Annual Meeting, Detroit, Mich.	Jan. 25-29

Boat Train Fare Cut

Transcontinental Rails Reduce Tariff for Certain Groups

WASHINGTON, Dec. 28—For the purpose of meeting motor-bus competition, transcontinental railroads terminating at San Francisco will put into effect on Jan. 15 sharply reduced passenger fares on coach travel from trans-Pacific origins. Permission to cut the rate was granted last week by the Interstate Commerce Commission. In their application the carriers stated that the reduced rates are designed primarily to recapture from motor-bus competitors army and navy traffic returning to the United States from the Philippine Islands, Hawaii, China and other countries. At certain seasons of the year this movement is large.

The lower rates, however, will be applied generally and "will not be discriminatory against any other passengers en route from a trans-Pacific point of origin," said the application. It was stated that the discharged soldier and sailor traffic is periodically considerable from trans-Pacific ports, but of late the buses had made such drastic cuts in fares that the carriers had lost practically all Service traffic.

Some of the new coach rates from trans-Pacific origins by way of San Francisco are: To New York City, \$46.55; Boston, \$51.25; Buffalo, \$39.82; Chattanooga, \$33.95; Chicago, \$34.50; Denver, \$22; Dallas, \$30.65; Jacksonville, \$38.90; Memphis, \$32; New Orleans, \$32; Omaha, \$28.50; St. Louis, \$32; St. Paul, \$34.50; Washington, D. C., \$44.15. Rates also apply to intermediate points.

Advocates \$2 Car Tax

NASHVILLE, TENN., Dec. 29—State Senator G. C. Ault announced recently that he would propose a tax of \$2 on each automobile as a means of retiring a \$5,000,000 bond issue.

NEW YORK SHOW WEEK EVENTS

Automobile Merchants Assoc., Dinner, Commodore	6.30 Jan. 8
International Registration, NACC offices	10.30 a.m. Jan. 9
Studebaker Corp., Dinner, Commodore	6.30 p.m. Jan. 9
Rubber Manufacturers Assoc. Meeting, Waldorf	10.30 a.m. Jan. 11
Packard Dealer Meeting, Roosevelt	9.30 a.m. and 5 p.m. Jan. 9
Packard Dealer Luncheon, Roosevelt	12.30 noon Jan. 9
Stutz Dealer Meeting, 16 W. 61st	10.30 a.m. Jan. 10
Reception of Overseas Guests, NACC offices	11.30 a.m. Jan. 11
Olds Motor Co., Dealer Meeting, Waldorf	11.30 a.m. Jan. 11
International Luncheon, NACC offices	12.30 noon Jan. 11
Hudson Motor Car Co., Dealer Luncheon, Commodore	12.30 Jan. 11
Hupp Motor Car Corp., Dealer Luncheon, Commodore	1 p.m. Jan. 11
International Trade Conference, NACC offices	2.00 p.m. Jan. 11
Metropolitan (SAE) Section Dinner, Commodore	6.30 p.m. Jan. 11
Auburn Automobile Co., Dealer Luncheon, Commodore	12.30 Jan. 12
Stutz Dealer Meeting, Commodore	9.30 a.m. Jan. 11
Oakland Dealer Luncheon, Waldorf-Astoria	12.30 noon Jan. 11
Hudson Motor Car Co., Dealer Luncheon, Commodore	12.30 Jan. 12
Olds Motor Co., Dealer Meeting, Waldorf	Jan. 12
Hupp Motor Co., Dealer Luncheon, Commodore	1 p.m. Jan. 12

NACC Banquet, Commodore	6.30 p.m. Jan. 12
Chrysler Dealer Luncheon, Commodore	12.30 noon Jan. 12
Graham-Paige Dealer Luncheon, Essex House	12.30 noon Jan. 12
Olds Motor Company, Dealer Meeting, Waldorf	10 a.m. Jan. 13
NACC Directors' Meeting, NACC offices	10 a.m. Jan. 13
De Soto Motor Co., Dealer Luncheon, Commodore	12.30 noon Jan. 13
Hudson Motor Car Co., Dealer Luncheon, Commodore	12.30 noon Jan. 13
Hupp Motor Co., Dealer Luncheon, Commodore	1.00 p.m. Jan. 13
Chevrolet Motor Co., Banquet, Commodore	6.30 p.m. Jan. 13
Motor & Equip. Assoc., Dinner, Astor	6.30 p.m. Jan. 13
Cadillac Dealer Luncheon, Waldorf-Astoria	12.30 noon Jan. 13
Dodge Bros., Dealer Luncheon, Penna. Hotel	12.30 noon Jan. 14
Olds Motor Co., Dealer Meeting, Waldorf	12.30 noon Jan. 14
Hudson Motor Co., Dealer Luncheon, Commodore	12.30 noon Jan. 14
Merchants Assoc., Luncheon, Astor	12.30 noon Jan. 14
Hupp Motor Car Co., Luncheon, Commodore	1 p.m. Jan. 14
Olds Motor Co., Dinner, Roosevelt	6.30 p.m. Jan. 14
Overseas Automotive Club, Dinner, Astor	6.30 p.m. Jan. 14
Society of Automotive Engineers, Dinner, Penna.	6.30 p.m. Jan. 14
Willys-Overland Co., Banquet, Commodore	6.30 p.m. Jan. 14
Oldsmobile Dealer Meeting, Waldorf-Astoria	Jan. 15

"HOW'S BUSINESS" for JANUARY?

As forecast by the
scores of editors of
UNITED BUSINESS PUBLISHERS, Inc.
and associated publications

DEFLATION, inevitable and widely advocated, has been proceeding at a rate which, if not stemmed, will do irreparable damage. The effective antidote seems to be *inflation*. We approach it reluctantly, but controlled inflation would be more apparent than real, since it is generally conceded that deflation has progressed beyond essential bounds in many lines, throwing the business structure heavily out of balance. It seems reasonable to expect some stimulation in this respect after the first of the year.

First lines of defense against weak spots and breaches in the financial structure having been put in operation through government initiative, a secondary line of defense, more comprehensive and far-reaching, will undoubtedly soon be set up. The benefit does not lie so much in funds provided, as it does in the stimulation of confidence, knowing that relief may be had with reasonable promptness in emergencies. It is to be hoped that such confidence will be quickly transmitted into the broad reaches of business where it is sorely needed.

The automotive industry presents new products which should give it a decided advantage in improving its position in the new year.

Highly organized retail merchandising is learning the effectiveness of strong promotional effort, and 1932 will witness some interesting developments along these lines.

The new Western Pine Association, by setting its house in order, has furnished a bright spot in the lumber industry, and crosses to the new year with orders showing a long lead over well controlled production.

Latin America restlessly marks time, waiting for gestures of confidence from this country, while inquiries in increasing number show the sold-out condition of her retail stocks in many lines.

From many indications that come to us, we step over into 1932 with expectations for better times based upon something more tangible than hopes; but with full realization that 1932, like other years, will reward the courageous, and those who develop their individual leadership.

BUSINESS	SALES	STOCKS	COLLECTIONS	COMMENTS
AUTOMOTIVE (Domestic Field)	Passenger cars 32% better, trucks 50% better, than December. About 5% and 17% less, respectively, than January, 1931.	Passenger cars slightly higher, trucks about the same as December. Both lines lower than January, 1931.	No change over December, and somewhat better than January, 1931.	Estimated sales: Passenger cars, 120,000 to 125,000; trucks, 18,000 to 20,000.
AUTOMOTIVE (Export Field)	New models expected to increase interest materially.	Generally believed to be low.	Not much change.	Export business awaiting revival of American confidence.
DEPARTMENT STORES	About 40% less (normal 50% to 60% less) than December, and about 18% less than January, 1931.	About 20% under December, and 25% under January, 1931.	No change from December, and slight improvement from January, 1931.	January should make a better showing, as compared with December, than it did last year.
DRUGS, CHEMICALS, MEDICINAL AND TOILET PREPARATIONS (Export Field)	Last quarter sales poorest this year, with better expectations after first of the year.	At very low inventories, without exception.	Collections still slow because of unfavorable exchange rates.	Prevailing sentiment is that bottom was hit quite recently, with evidence of rebound already noticeable.
HARDWARE	About 10% lower than December; and 15% lower than January, 1931 on a dollar basis.	About 15% lighter than December, and 5% lighter than January, 1931.	Unchanged, and fairly satisfactory, as compared to December, 1931. Slower than January, 1931.	Firming price tendency in quotations for many hardware items is a bright spot in the industry.
INSURANCE	Lower in all lines than in December. About same in life, slightly lower in fire and casualty than in January, 1931.	.....	Unchanged.	January, always a stellar production month in life, should not fall much below January, 1931.
JEWELRY	Very much lower than December; and lower than January, 1931, taking the country as a whole.	Lower than December, and lower than January, 1931, except in a few centers where they will be the same.	Generally better than December.	.....
MACHINERY METAL PRODUCTS METALS	Under ordinary conditions, steel industry can look for seasonal rise starting early in January with steady rise to March or April. There have been few years, good or bad, in which such a spring rise has not occurred.	A ray of hope has entered machine tool industry through recent sizable purchases by automotive manufacturers, and increase in miscellaneous inquiries which seem to indicate that manufacturers are considering modernization.	.....	The future trend of steel is closely bound up with general economic situation. Steel industry will be quick to reflect any general betterment.
SHOES	Seasonal decrease from December, and about on a par with January, 1931.	Stocks will be in more workable shape in January. Steady level in retailers' hands now prevailing.	Collections at retail no particular problem, and about the same as December, and January, 1931.	January is the buying month for Easter footwear, with outlook for fair volume.



“Just as good as a
KUPPENHEIMER”

THE ancient argument of competition “it’s just as good as” is not fooling the automobile manufacturer—especially about mufflers.

The Burgess Straight-Thru Muffler is giving the public what it wants—power, quiet and speed.

Complete silencing without high back-pressure, obtainable only by the Burgess principle of muffling, has assisted in developing the modern automobile—powerful, fast, economical and quiet.

Don’t let competition fool you—give the public what it wants.

BURGESS

As illustrated, the Burgess Muffler consists of three principal parts; a straight open perforated pipe, D, surrounded by a sound absorbing material, E, which is enclosed in a metal covering, F. The exhaust gases from the engine pass straight through the perforated pipe, D, but the exhaust noises are absorbed, assuring satisfactory muffling.



“Straight Thru”
MUFFLER

BURGESS BATTERY COMPANY - 111 W. Monroe St. Chicago

Automotive Industries

January 2, 1932

NEW DEVELOPMENTS

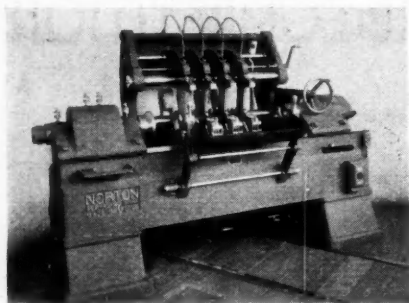
Automotive Parts, Accessories and Production Tools

New Type 40 Lapping Machine

A crankshaft lapping machine is now offered by Norton Co., Worcester, Mass., for lapping simultaneously the pins and bearings of crankshafts. The shaft to be lapped is rotated between a live headstock and a floating footstock center. The lapping arms, one of which is required for each pin and bearing, are equipped with telescoping reels, each of which carries a roll of abrasive paper. Each time a lapping arm is removed from a pin or bearing these reels are indexed automatically, thus presenting a fresh, unused abrasive surface.

By means of reciprocation mechanism in the headstock, the shaft is caused to move back and forth in the direction of its axis. This materially improves the finish and eliminates all grinding wheel marks. Lapping lubricant is pumped to each arm by a pump which with its driving motor is a complete unit supplied as part of the machine equipment.

The headstock remains permanently at one end and the footstock is adjustable to accommodate a range of crankshaft lengths. The footstock center is operated by a treadle thus permitting an operator the use of both hands when loading or unloading. As additional equipment a work loading fixture can be attached to the front of the bed when lapping heavy shafts.



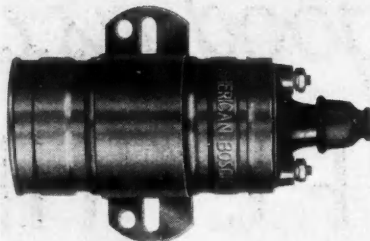
A feature of the machine is the supporting housing for the lapping arms. Upon completing the lapping of a shaft each arm is released and the housing swung backward by a spin of the hand wheel. Thus, the lapping arms and their supporting members are moved out of the way for loading and unloading.

The machine will swing 16 in. diameter over the table and will accom-

modate a maximum length of 48 in. Crankshaft pins and bearings up to 2½ in. in diameter by 4½ in. long can be lapped. The machine complete weighs 4800 lb. and requires a floor space approximately 56 x 104 in. Motor driven or belt driven models are offered.

American-Bosch Coil

The United American-Bosch Corp. of Springfield, Mass., announces an addition to its American-Bosch line of



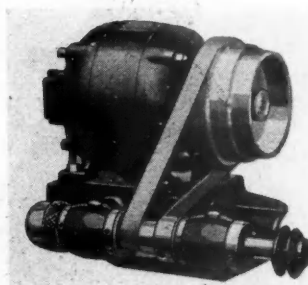
high-tension ignition coils, known as the TC-46 series. The windings of this coil are said to be so balanced that a special condenser is not needed. Also, if the ignition key is left on, the coil will not overheat or burn out. The windings and core are sealed in a metal container, and as an additional protection a rubber nipple is furnished to keep moisture out of the high tension terminal. The metal housing permits rapid dissipation of heat generated in the primary circuit into the surrounding air.

Layth-Grindar Attachment for Lathes

A precision grinding attachment for bench and engine lathes has been placed on the market by the Layth-Grindar Corp., Orange, N. J. It uses a standard low-speed motor—1725 r.p.m. on all the engine lathe sizes except on the smaller ½ hp. unit where the motor speed is 3450 r.p.m., and approximately the same r.p.m. on the two bench lathe sizes. These speeds are "stepped up" to the desired spindle speed. In other words, the highest speed in the machine is on the grinding spindle, usefully employed.

The spindle pulley is mounted between the spindle bearings. This

equalizes the load on the bearings, and avoids any tendency to spring the spindle out of line or to set up a "whipping" vibration.



It is firmly mounted on the lathe compound. There is the broad, firm contact between two large flat machined surfaces, held together by a T-slot bolt.

Footburt Broaching Machines

The Foote-Burt Co., Cleveland, Ohio, has brought out two improved Duplex Surface Broaching Machines known as the No. 1 Duplex Surface Broaching Machine and the No. 3 Duplex Surface Broaching Machine. The No. 1 has an input of from 5 to 7½ hp.; the No. 3 from 15 to 20 hp. This corresponds to the amount of metal that it is possible to remove; the No. 1 being capable of removing 3.3 cu. in. of mild steel per minute and the No. 3, 8.6 cu. in. of mild steel per minute. One feature of the process lies in the broach which is said to machine 50,000 pieces per grind on some jobs.

One reason for the long life obtained from the broach is that it is so well supported by the slide and upright column that there is no vibration.

The machine has two broach slides which counterbalance each other as they are joined together with a spiral driving pinion and have a rack on each slide. When the one slide is driven down in cutting, the other is automatically going up, making a continuous cutting condition. The speed of the machine is limited only by the ability of the operator in loading and unloading the fixtures.

The broach is of a heavy back type construction and is held in its holder on the slide, making practically one solid piece. The design of the broach makes it possible to have rough, semi-finish and finish cuts all handled by one tool with each tooth performing its own particular function only. When necessary to sharpen, the broach is removed by withdrawing a few socket head cap screws and may be quickly reassembled in the locating groove on the broach holder. In sharpening, the edges only are touched up on a grinding wheel. On account

(Turn to page 38, please)

To the man who is tired of listening to squawks about squeaks

Every man who sells or services automobiles knows the grief that can be caused by body noises.

"Squeaks and squawks" run free service costs way, way up. They're deadly to the new-owner's enthusiasm for his car. They're responsible for many a switch to another make of car.

• • • • •

The automobile body that has no joints just can't squeak or rattle. By eliminating parts and by the extensive use of flash welding, Budd eliminates joints. The Budd All-Steel one-piece body is made from only eight major parts—flash-welded into one single jointless unit.

This construction was originated and perfected by Budd engineers. No other type of construction can equal it for quiet—permanent quiet.

The silence of the Budd one-piece body enables dealers to eliminate their free service costs on body noises. More than that, its quietness is an important factor in selling cars—and in helping to keep them sold.



★ BODIES BY BUDD ★

Originators of the All-Steel Body. Supplied to Manufacturers in the United States, Great Britain, France and Germany
Automotive Industries

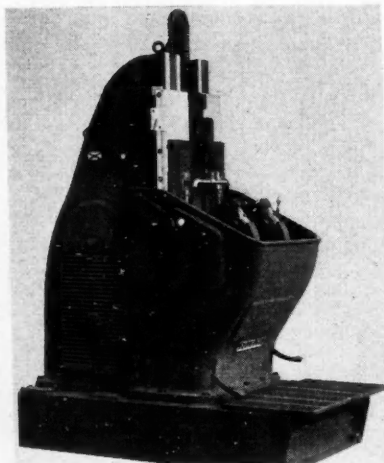
January 2, 1932

NEW DEVELOPMENTS

Automotive Parts, Accessories and Production Tools

of the slow cutting speeds which average from 10 to 40 ft. per minute long tool life is maintained. Frequently these tools run several days before resharpening is required.

Broaches are usually built up in sections. As an illustration, a broach 30 in. long would be composed of five sections, each section 6 in. long. The face is ground for sharpening and after many grinds the lower section or roughing teeth only are discarded and the remaining broach moved down in its position.



Fixtures are located in front of each slide and move to and from the broaches automatically. They are in position for easy loading and unloading. In some cases they are furnished with hand operated clamps which are used to hold the work in place. In other cases it is possible to design fixtures that automatically clamp the work. When the slide is at the bottom of the stroke, the fixture is in the loading position and the piece to be machined is loaded while the slide moves up. As soon as the piece is in place, a foot lever is tripped and as the slide reaches the top of the stroke the fixture is automatically moved in position for the work to be machined. The slide moves down and the piece is machined, the fixture being automatically moved back for unloading and reloading. If the foot lever is not tripped before the slide reaches the top of the stroke, the fixture remains in the loading position until the next cycle.

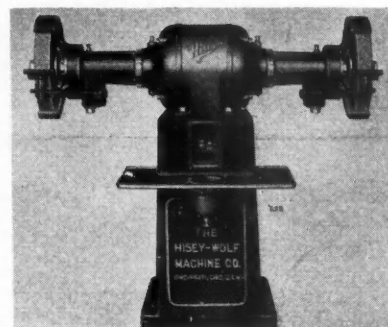
A motor designed for frequent reversing is used. Dogs bolted on the left hand slide operate a switch gov-

erning the reversing of the motor. Power is transmitted through V-belt drive and a worm and worm gear set to the driving pinion. The pinion is in mesh with helical steel racks mounted on the slides.

Hisey Wide Swing Floor Grinders

To meet the demands of grinding large and irregular shaped work, The

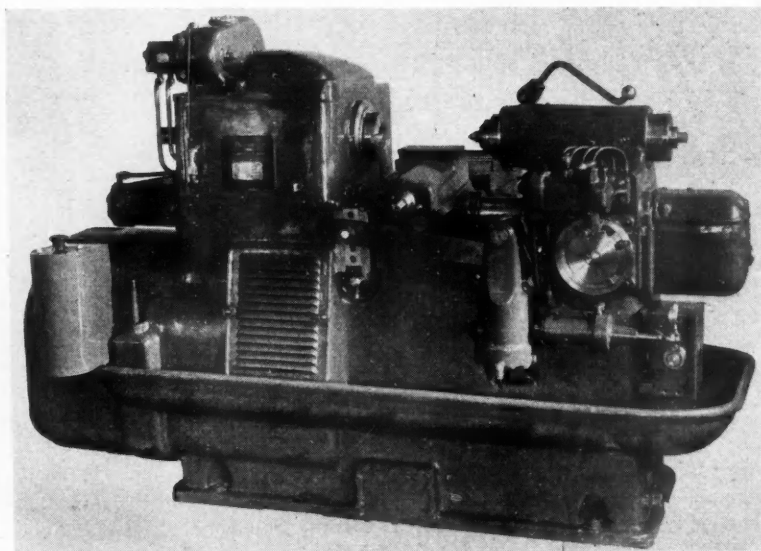
Hisey-Wolf Machine Co., Cincinnati, Ohio, has added a 2½ and 3½ hp. wide swing grinder to their line. These machines have the same design features that characterize the Hisey line.



Both machines are available for DC. and AC. current as specified. Wheel size 12 by 2 and 14 by 2½ in. respectively. Net weight, 750 and 825 lb.

Barnes Automatic Lathe

The new No. 8 Barnes Automatic Lathe just placed on the market by the John S. Barnes Corp., Rockford, Ill., has "Multi-Range Hydraulic Feed" with direct drive from motor to the spindle through multiple Vee-belts. A variable speed motor drives the machine with automatic hydro-electric control for starting and stopping the spindle as well as the slides. There is no clutch.



The spindle is mounted in anti-friction bearings to run at the higher surface speeds made possible with the new cemented carbide tools. This, coupled with the rugged construction, provides for employing the greater power input that these new tools require. The spindle rotates clockwise opposite to the conventional lathe. This puts the full load on the lathe bed.

Feed pumps designed and built by Barnes are driven from the main spindle. A separate gear pump supplies the rapid traverse and is driven by an individual motor. With hydraulic feed, the slides are brought against positive stops.

Set-up due to the new automatic hydro-electric control is said to be faster and the machine can be quickly changed over from one job to another.

Both front and rear carriages are

automatically rapid traversed to the work and return. The front carriage is fed forward to bring the tools in to the correct depth and then drop back to relieve the tools on the return stroke. This arrangement provides means for taking care of turning tapers as the pivot for the guide bar can be adjusted so that the bar is inclined for tapers and horizontal for straight turning.